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# yale medicine



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spinal surgery

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autumn 2007

## Taking the E-ROAD

Young doctors are seeking a lifestyle  
as well as a calling.

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## AUTUMN 2007

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#### On the Web

[yalemedicine.yale.edu](http://yalemedicine.yale.edu)

On our website, readers can submit class notes or a change of address, check the alumni events calendar, arrange for a lifelong Yale e-mail alias through the virtual Yale Station and search our electronic archive.



## Yale announces purchase of 136-acre Bayer campus

President Richard C. Levin announced in June that the university would buy a 17-building, 136-acre pharmaceutical campus that straddles the border of neighboring West Haven and Orange. The Bayer HealthCare complex would provide 550,000 square feet of new laboratory space, 275,000 square feet of office space and 600,000 square feet of warehouse and manufacturing space. Bayer announced last fall that it would close the facility.

The purchase means more than just more room for Yale, which is chronically short of space for laboratories, offices and storage of library and museum collections. New lab space also enhances the university's research capabilities, particularly at the School of Medicine. And it could encourage the New Haven area's continued emergence as an incubator of biotech startups—there are 40 biotech companies in the area, many of them spin-offs from Yale research.

"Yale is already in the midst of a boom in the expansion of its science and medical facilities," Levin said, noting that the university has added several million square feet of space in the last decade and has plans to build more. "The addition of this ready-made, state-of-the-art research space will allow that growth to accelerate at an unprecedented level—

potentially making it possible for Yale scientists to develop new discoveries, inventions and cures years earlier. The availability of Bayer's science laboratories will enable us to undertake research programs that we would not have had space to develop for a decade or more."

Despite the purchase of the Bayer campus, Yale will continue with plans to add to its facilities in New Haven. "The heart of the Yale campus will always remain in New Haven," Levin said. "In fact, the university is already committed to building more than 2 million square feet of new facilities in its home city over the next six years. And we are in discussions about the possibility of leasing a significant amount of space in Science Park to help strengthen its role as an incubator for science-based startup companies."

As part of the purchase, Yale will make voluntary payments to West Haven and Orange proportionate to the voluntary payment made to New Haven. The municipalities will receive additional payment-in-lieu-of-taxes funds from the state of Connecticut in recognition of the property's future nontaxable academic status. Yale will also invest \$1 million over the next three to four years to enhance and strengthen the professional development of middle and high school science teachers in the Greater New Haven area.

Yale is developing plans for the best use of the facilities at the former Bayer complex.



### HOW TO REACH US

*Yale Medicine* welcomes news and commentary. Please send letters (350 words or less) and news items to *Yale Medicine*, 300 George Street, Suite 773, New Haven, CT 06511, or via e-mail to [ymm@yale.edu](mailto:ymm@yale.edu), and include a telephone number. Submissions may be edited for length, style and content.

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[yalemedicine.yale.edu](http://yalemedicine.yale.edu)

An aerial view of the 136-acre Bayer HealthCare complex, which Yale purchased this summer.



## Yale Medicine

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## A generational divide, biomedical engineering and a new chapter in organ transplantation

When we were looking for a writer to explore a generational trend—the desire of young doctors to balance their personal and professional lives—we immediately thought of Jenny Blair, M.D. '04. Jenny had written for us before—a witty essay about medical jargon for *Yale Medicine* ["From the Beautiful to the Obscure," Winter 2004] and a feature article about her four years living in the Harkness dormitory ["That College Feeling," Spring 2004]. She also found time as a medical student to write a column for the *Hartford Courant* about becoming a doctor. In her cover story for this issue, Jenny spoke to physicians of her own generation who want time for themselves and their families, as well as to older doctors who conduct their lives by a different ethos. Paralleling her story is New Haven photographer Julie Brown's photo essay about the life of a young ophthalmologist at Yale who's trying to build a career, spend time with his nephrologist wife and young daughter, and still find time to play soccer.

Boston-based writer Pat McCaffrey traveled to Yale this spring to report on the links between three young scientists

in the Department of Biomedical Engineering who started their careers in the laboratory of Robert Langer, SC.D., at the Massachusetts Institute of Technology. All three—W. Mark Saltzman, PH.D., Erin Lavik, SC.D., and Laura E. Niklason, M.D., PH.D.—have made huge strides in biomedical engineering, in projects ranging from off-the-shelf vascular tubing for bypass surgery to medication-soaked wafers that dissolve in the brain. They each credit Langer with encouraging and inspiring them.

In our third feature, we welcome liver surgeon Sukru H. Emre, M.D., who arrived at Yale this summer from Mount Sinai Medical Center in New York City to head up the organ transplant program. Throughout his career he's earned accolades from patients as well as former students and residents. "I'd never profiled anyone where so many sources had such extravagant praise for a subject," said writer Colleen Shaddox. Her profile of Emre begins on page 18.

John Curtis  
Managing Editor

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### SECOND OPINION BY SIDNEY HARRIS





## A 19th-century craft immortalizes the august

In the 1950s a Yale professor created plaster casts of the faces of the medical school's greats.

In the corridors of the Sterling Hall of Medicine, great men stare out from their portraits with expressions of visionary compassion. But to see what some eminent professors of yesteryear looked like in three dimensions, one must visit the library.

William Lawrence, D.D.S., former associate professor and chief of dental surgery, recently donated to the Historical Library at the Cushing/Whitney Medical Library a series of moulages, three-dimensional figures molded from the faces of the medical school's department chairs, which he made in the 1950s.

The moulages were an experiment in economy, because it was expensive to commission oil portraits of each department chair. So Lawrence was asked by the dean's office to try his hand at sculpture using the techniques of dentistry.

He began the process by covering the subject's face with the film used for taking impressions to make gold inlay fillings. Next came a layer of gauze, followed by a coating of plaster. Meanwhile, the subject breathed through straws inserted in the nostrils. After the mold dried, Lawrence filled it with dental stone. The result was an exact replica of the contours of the subject's face.

The process was somewhat uncomfortable, but it was essential to have the subjects relax in order to prevent tightening of the facial muscles.

"I told them to think of something sexy," recalled Lawrence, now 95. "Imagine those old buggers thinking of something sexy!"

Medical moulages were first introduced late in the 19th century, when they were made from wax and used in the diagnosis and treatment of venereal and skin diseases. They came to prominence at the first International Congress of Dermatology and Syphilology in Paris in August 1889. By the early 20th century moulages were produced by the thousands all over Europe.

Arranging face time with the department chairs, as it were, was difficult for Lawrence. "They all lived exalted lives," Lawrence explained. After lunch in a private dining room, they returned to their offices and were not to be disturbed until 2 p.m., he said.

The first chair Lawrence did was so pleased that they all wanted moulages made. The moulages he donated depict a former dean, Francis Gilman Blake, M.D.; Sterling Professor of Physiology John F. Fulton, M.D.; Anthony Brady Professor of Pathology Harry Greene, M.D.; Chair of Surgery Samuel C. Harvey, M.D.; Dean C.N.H. Long, M.D.; Professor of Preventive Medicine John Paul, M.D.; John Slade Ely Professor of Medicine John P. Peters, M.D.; Associate Professor of Pediatrics Robert Salinger, M.D.; and Associate Professor and Chief of Dental Surgery Bert George Anderson, D.D.S. Anderson was a friend and colleague who preceded Lawrence as chief.

The school did commission oil portraits despite the moulages' popularity, leaving the masks in Lawrence's possession.

More requests followed, including one from a famous patient—author and playwright Thornton Wilder. Lawrence unveiled the moulage during one of Wilder's spirited parties at his residence in Hamden. The subject objected that the moulage did not do justice to his intelligent brow. Wilder was comparing the realistic moulage to the sculpture of him done by Isamu Noguchi. However, he must have come to like the realistic depiction, as it was donated along with his papers to Yale's Beinecke Rare Book and Manuscript Library.

The wife of an intern who died asked Lawrence to make a moulage from the corpse and mail it to her in Wyoming. "I always wondered what it was like when she opened the box and saw her husband's face," Lawrence said.

His handiwork helped the living when he used the technique to make prosthetic noses and ears in latex. Lawrence also devised a tool that fit between the teeth and enabled an armless veteran to turn pages.

The faculty moulages are now preserved at the library, where researchers can use them to grasp "an instant in time, something that a picture won't give you," said Toby Appel, the John R. Bumstead Librarian for Medical History. They may also be exhibited so that a wider community can look into the face of history.

—Colleen Shaddox



In the 1950s William Lawrence used his skills as a dental surgeon to create moulages of the faces of department chairs, including Samuel Harvey, a former chair of surgery.



## Bringing management strategies to Ethiopia's hospital system

In December 1995, Elizabeth H. Bradley, M.B.A., PH.D. '96, professor of public health, received a call from the William J. Clinton Foundation about a project in Ethiopia. Because she had never been to Africa and wasn't an expert on global health issues, her first thought was, "Who can I triage this call to?"

But two weeks later, when foundation representatives visited Yale and discussed the Ethiopian Hospital Management Initiative, Bradley concluded, "I guess I have something to offer." The project involved improving hospital management systems—an area in which Bradley is an expert.

The foundation chose Ethiopia because the need there is great and government officials wanted to focus on improving health. The reputation of Yale's hospital administration and

health management programs made the university a logical choice for partnering with the foundation.

Bradley, who is director of Yale's Health Management Program in the Division of Health Policy and Administration, was formerly an administrator at Massachusetts General Hospital. When she came to Yale, she and Harlan Krumholz, M.D., M.Sc., the Harold H. Hines Jr. Professor of Medicine and professor of epidemiology and public health, demonstrated how hospitals could shorten "door-to-balloon" time—the crucial period between a heart attack patient's arrival at the hospital and the restoration of blood flow through angioplasty.

The goal of Bradley's Ethiopian project is similar: to improve the quality of health care through better management practices. During two visits to the country, she found that the hospitals lacked a set of reliable systems. "The hospitals have limited patient registration systems, incomplete medical records and inadequate inventory controls," she said.

Whereas Ethiopia's population is about one-quarter the size of that of the United States, it has only 2 percent the number of hospitals. The World Health Organization standard is to have one health worker for every 10,000 people,

but in parts of Ethiopia the ratio is one to 50,000. A scarcity of supplies, low salaries and patients who can rarely pay for their care add to the challenge.

Bradley hopes to institute the "fundamental elements" of good hospital management, including triage systems, inventory management and improved infection prevention practices.

To implement these measures, she assembled a team of 23 Yale-Clinton Foundation fellows in international health care management, who have been working side by side with Ethiopian hospital medical directors and managers for 10 months. She received more than 150 applications worldwide for the 23 slots. The successful applicants had hospital administration and public health experience, with master's degrees in public health, health administration or business. After an orientation at Yale, the team left for Ethiopia in July 2006. A subset of the fellows will continue for a second year.

Bradley's team administered a baseline assessment of 100 management indicators to Ethiopian hospitals before the program began. These included the percentage of staff with job descriptions and performance evaluations, whether nurses were trained in standard practices, and the percentage of medical records that could be retrieved on readmission. The average score was 60 percent.

When the project ends, another assessment will determine whether the management methods were implemented and, if so, what impact they had.

But Bradley already sees evidence that the program is working. "Now, when you walk down the hall of one of the hospitals, it's not unusual to hear the medical director and nurses using terms like 'fishbone diagrams,' 'flow charting' and 'quality improvement.'" —Jennifer Kaylin



JOSH PASHMAN

Hospitals in Ethiopia, such as this one, will benefit from the work of public health professor Elizabeth Bradley.

## An anatomist's recovery: surgery hits close to home for head of first-year course

First-year medical students had to make do without one of their most beloved professors last spring, when William B. Stewart, PH.D., associate professor and chief of the Section of Anatomy and Experimental Surgery, underwent spinal surgery in February.

A sore neck prompted Stewart to seek medical attention for what turned out to be a tumor on his spinal cord that required immediate surgery, two weeks at Yale-New Haven Hospital and five weeks of rehabilitation at Gaylord Hospital in Wallingford, Conn. His recovery continued through the spring as he spent time and energy at home doing rehabilitation exercises, learning to walk without a crutch and regaining the ability to tie his famous bow ties, which he has rarely been seen without for the past three decades. He expects to be back in the anatomy lab for the current academic year.

As an anatomist, Stewart is intimately familiar with the inner workings of the human body and aware of any mishaps that might have occurred during the delicate operation. "In some respects it's frightening because you know so much—what might happen, and all of the possible negative consequences," he said. "On the plus side, I think I understand a lot about how my body works so that my interactions

with my therapists have been a little richer, because we can discuss what muscles are involved and make a more efficient plan for rehab."

Although Stewart was absent from the anatomy lab for almost the entire second semester last spring, he began preparing for the start of the current school year early by practicing his lectures and drawing on a whiteboard at home. His lectures have traditionally included neurobiology, but he said that now there will be a little more relevance, given his experience as a patient. His colleague and course director Lawrence J. Rizzolo, PH.D., associate professor of surgery (anatomy), filled in while Stewart was recuperating. Rizzolo noted that Stewart also plays a large role in organizing and running the section. "I didn't realize all that Bill does until I was asked to do something," he said.

Every medical student for the past 30 years has studied under Stewart, who instructs physician associate and nursing students as well as future physicians. And in addition to teaching Yale students, Stewart oversees a collaboration between the medical school and Hill Regional Career High School. Students from the high school come to Yale for anatomy classes led by first- and second-year medical students. "He has a very calming presence that makes you enjoy the process of learning about the human body," said first-year student Lionel McIntosh, one of the instructors for the Career High

program. "He knows how to make us better teachers. That go-to person if you had a difficult concept to explain was definitely missing." Besides teaching anatomy, Stewart studies the effects of low levels of oxygen on postnatal development of the brain.

But it is obvious to the students who clamor for his attention in the anatomy lab and to anyone who has ever observed his enthusiasm in the classroom that Stewart's first love is teaching.

—Jill Max



A visit to the doctor for a pain in his neck led to surgery to remove a tumor in the spinal cord of William Stewart, who has taught anatomy to generations of Yale medical students. His familiarity with the human body gave him an unusual perspective on the operation. "In some respects, it's frightening because you know so much," Stewart said.



## ARMENIAN RECTOR VISITS YALE

Gohar P. Kyalyan, M.D., rector of Yerevan State Medical University in Armenia, met with Dean Robert J. Alpern, M.D., in March to discuss instruction in clinical skills using teaching methods practiced in the United States. Kyalyan visited Yale as part of a tour that included Boston University School of Medicine, Columbia University Medical Center, NYU Medical Center and UCLA Medical Center. She is seeking support for exchange programs between the Armenian school and medical schools in the United States.



## Student-run free clinic wins Ivy Award for service to the New Haven community

Working at HAVEN Free Clinic has given first-year medical student Emma Barber, who serves as associate director, the chance to meet patients who are "some of the most grateful, humble, amazing people," she said. Open each Saturday, HAVEN (Health Care, Advocacy, Volunteerism, Education and Neighborhood) offers primary care, social services and free specialty referrals. [See "Students Reach Out to the Uninsured at Free Medical Clinic in Fair Haven," Autumn 2006.] Since the student-run center opened in November 2005, more than 200 patients have received free medical care.

Along with the gratitude of the patients, HAVEN also received thanks this spring in the form of an Ivy Award, given to people and organizations that further partnership between New Haven and Yale. The Elm-Ivy awards were established in 1979 with the support of Fenmore Seton, a 1938 Yale College alumnus, and his wife, Phyllis, who established an endowment at the Community Foundation for Greater New Haven. Elm Awards are given to members of the New Haven community, and Ivy Awards are given to Yale staff, faculty and students.

HAVEN is based at the Fair Haven Community Health Center and is run by students in public health, nursing,

medicine and the Physician Associate Program with assistance from undergraduates. The students work with attending physicians from the School of Medicine and the community and attending clinicians from the Fair Haven Community Health Center.

Although it was designed to provide temporary free care for patients while helping them obtain medical coverage, many patients—a large number of whom are undocumented workers with no health insurance—see the clinic as their primary care provider. HAVEN offers free medications, Saturday hours and a friendly atmosphere, said Barber.

These long-term relationships have led organizers to recognize new areas for expansion, with latent tuberculosis treatment and Spanish-language mental health services emerging as priorities. Many patients present with depression, said Barber, and they face a 12-month waiting list for low-cost services elsewhere. Along with antidepressants and counseling, organizers are planning community tours to put immigrant patients in touch with churches and other resources that might help them combat social isolation.

—Colleen Shaddox



Medical students who launched a free clinic in the Fair Haven neighborhood of New Haven received an Ivy Award last spring for their efforts. From left, Maggie Samuels-Kalow, Ryan Hebert, Mallika Mendu, Christopher Janson, Sara Crager and Andrew Simpson received the award from President Richard Levin.

et cetera ...

### TRACKING THE YALE SHUTTLE ONLINE

A new service has taken the guesswork out of waiting for the Yale shuttle. Anyone with a computer, a Web-based cell phone or a PDA can track the shuttle's progress on an online map of New Haven and the Yale campus. Yale Shuttle Services, part of the Parking and Transportation Department, offers the service, called Transit Visualization System, at [www.yale.transloc-inc.com/](http://www.yale.transloc-inc.com/).

Green, blue, orange and purple routes are outlined on a map of the Yale campus. Buses move along their routes in real time. Yale students, staff and faculty can track the shuttle's progress and leave offices or classrooms in time to catch a ride.

The buses usually appear on the computer about five seconds behind their actual location on the street. This difference is due to several factors, including network traffic, computer speed and the number of programs running on a computer.

—John Curtis

### POLICY BENEFITS GRAD STUDENTS

Any graduate student knows that juggling research, teaching duties and scholarship is challenging enough, and becomes even more so when combined with the added responsibilities of parenthood. Now Yale has become more family-friendly with new policies for full-time PH.D. students who become parents during their first to sixth years of study.

After the birth or adoption of a child, PH.D. students may suspend their academic responsibilities and request relief during that semester or the following one. Students will remain registered for that semester and continue to receive financial aid, and their scholarly obligations will be modified. The students' academic clock will also stop for one semester.

"New parenthood at the birth or adoption of a child substantially affects the ability of doctoral students to meet academic and professional obligations," Provost Andrew Hamilton, PH.D., said of the new policies that took effect July 1. These policies, he said, "support the intersecting personal and professional lives of graduate students at Yale."

—J.C.



## Danger to patients seen in repeated tests

A Yale physician warns colleagues that overuse of CT scans can increase health risks from radiation.

Since the 1970s, computed tomography (CT) has become an increasingly important diagnostic tool whose use has expanded in recent years to replace such conventional procedures as X-rays and ultrasound. But greater dependence on this imaging technique comes at a price: increased exposure to radiation that could increase a patient's risk of cancer.

In the keynote address at the 43rd National Council on Radiation Protection and Measurements meeting in April, James A. Brink, M.D., professor and chair of diagnostic radiology, emphasized that physicians need to be more aware of the risk of CT and other imaging devices that use radiation. The number of CT exams administered

each year in the United States has increased exponentially, growing from 3 million in 1981 to 63 million in 2005. CT scans commonly give the patient a dose of 10 to 25 millisieverts (mSv), compared to 0.10 mSv for a chest X-ray. But even those low-dose exposures typical of CT scans can increase the risk of cancer, according to the Radiation Effects Research Foundation, formerly the Atomic Bomb Casualty Commission, which studies the long-term effects of radiation from the uranium fission bombs detonated at Hiroshima and Nagasaki. That means that patients who undergo numerous CT scans, which is not uncommon, may be in the medium-dose exposure range of the atomic bomb. And smaller doses have a cumulative effect. "That's important, because if you do several low-dose CT scans, they add up to a larger dose that has the same risk," said Brink.

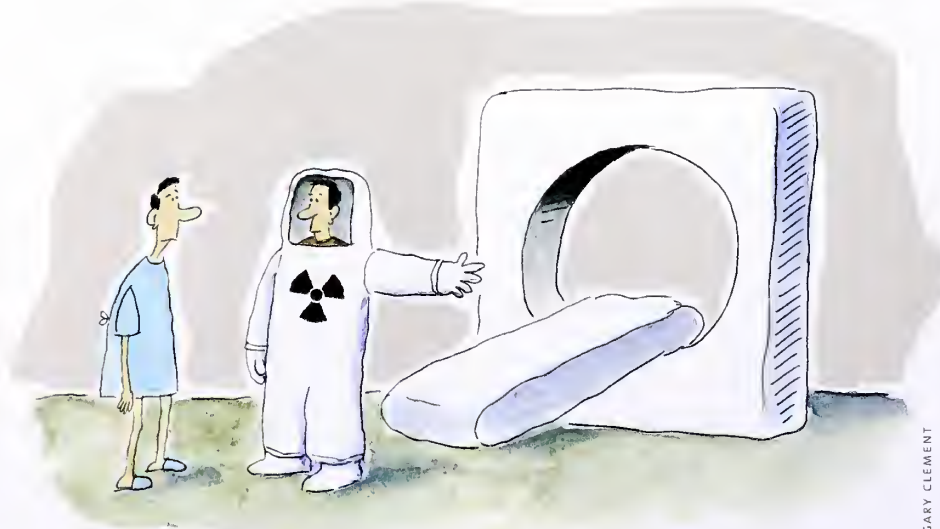
In the United States, medical necessity and the judgment of physi-

cians determine whether CT scans will be approved, but radiation exposure is not part of the equation, according to Brink. In Europe, however, each country regulates exposure from CT and other imaging modalities that use radiation. "I think we're at least a decade behind Europe in terms of attention and regulation regarding medical radiation," Brink said.

Although Brink is quick to point out that CT has an important place in diagnosis, he also notes that there are a number of ways to control the radiation exposure it entails. "CT should be avoided when MRI or ultrasound is of comparable diagnostic utility," he said, citing one patient who had 18 CT scans over six years for flank pain, a symptom that usually indicates kidney problems. "He probably only needed the first one and didn't need the next 17." In addition, physicians should avoid repetitive exams, tailoring them to the individual patient and the individual application. Manufacturers provide tools to alter the technical parameters of scans, so that a patient having a CT for kidney stones, for example, won't receive as much radiation as a patient undergoing a scan for metastatic colon cancer.

Since physicians can't take steps to avoid or reduce exposure if they aren't aware that the problem exists, education is perhaps the most important component of controlling exposure. In a 2004 study at Yale, Brink and colleagues found that only 9 percent of emergency physicians who had ordered CT scans for pelvic pain over a two-week period believed there is an increased cancer risk from CT. When asked how many chest X-rays are equivalent to one CT, 44 percent of radiologists thought it was equal to between one and 10 chest X-rays—the correct answer is between 100 and 250. "Even radiologists didn't appreciate the difference," said Brink. "It shows that education is lacking across the board."

—Jill Max



GARY CLEMENT

## Yale joins national effort to reconsider the benefits of hormone therapy

In 2002, the Women's Health Initiative (WHI), a research program begun in 1991 by the National Heart, Lung, and Blood Institute to address common health issues in postmenopausal women, issued an explosive report. Women who had had hormone replacement therapy (HRT)—a popular and highly recommended method of reducing the discomforts of menopause—were at greater risk of having heart attacks. This news—which was at odds with previous research—rocked the medical and lay communities and prompted many women and their doctors to abandon HRT.

But some researchers had doubts about the study; could limitations in the data analysis have skewed the results? Noting that the WHI studied older women, these researchers questioned whether HRT might provide a higher degree of protection for younger women who had recently entered menopause.

The Kronos Early Estrogen Prevention Study (KEEPS), coordinated by the Kronos Longevity Research Institute in Phoenix, is an effort to answer this question. Nine sites around the country, including the School of Medicine, are participating in a five-year study of 720 women to determine whether beginning hormone therapy in recently menopausal women (ages 42 to 58) protects against atherosclerosis, the major cause of heart attacks.

The principal investigator of the Yale portion of the study is Hugh S. Taylor, M.D., professor of obstetrics, gynecology and reproductive sciences and of molecular, cellular and developmental biology, and director of the department's division of reproductive endocrinology and infertility. Ninety menopausal women who are within three years of their last period will receive one of three regimens—progestin plus an estrogen patch; oral

estrogen; or progestin plus a placebo. Researchers will monitor the effects of estrogen on the subjects' cardiovascular systems over four years, studying such markers as coronary calcium levels and the thickness of the walls of the carotid artery.

"We want to look at women from the beginning, before atherosclerosis has already started to develop," Taylor said. The problem with the WHI study, he said, is that researchers looked at women who were already more than a decade past their last period. "It was too late. Those women had already started showing signs of heart disease."

KEEPS will also look at cholesterol levels and other markers to explore which hormone delivery system is better: transdermal or oral. Transdermal estrogen is thought to be safer because it isn't processed by the liver in high concentrations.

In addition to these two studies, each KEEPS site is conducting its own ancillary studies. Yale researchers plan to look at estrogen's effects on skin integrity, bone density, moods, cognition (including memory) and heart rhythms.

Last spring the WHI followed up on its initial research with a study of younger women. Its findings suggest that the KEEPS study may yield encouraging news for women. WHI found a 24 percent reduction in risk of coronary heart disease in women starting HRT less than 10 years after menopause and a 30 percent reduction in overall deaths among women ages 50 to 59 using HRT. And in June, a report by WHI researchers published in *The New England Journal of Medicine* found that women who take estrogen for seven years after menopause had a lower risk of calcification of the arteries.

—Jennifer Kaylin



podcast

A podcast of Hugh Taylor speaking on this subject can be found on the Yale page on iTunes U. Visit [itunes.yale.edu](http://itunes.yale.edu) or launch iTunes, then select Yale from the offerings under iTunes U. The podcast is included under "Yale Health & Medicine."

## ERRORS AND TRANSPLANT PATIENTS

Patients recovering from organ transplants run a high risk of medication errors that can land them back in the hospital, according to a Yale study published in the *Archives of Surgery* in March.

In the years after surgery, liver, kidney or pancreas transplant recipients took an average of 10.9 medications. The study found 149 errors occurring in 93 patients, with 32 percent resulting in invasive procedures, rejection or failed transplants.

In more than half the cases—56 percent—patients didn't follow instructions. In other cases, pharmacists substituted generic for brand-name medications or declined to provide the proper medications out of concerns about adverse drug interactions.

"Once the prescription is ordered, we have no routine feedback from the patient, pharmacy or insurer to know whether the medication is being used," said lead author Amy L. Friedman, M.D., associate professor of surgery. Every encounter with a patient should be viewed as an opportunity to clarify which medications are being taken.

—John Dillon

## NEW TREATMENT FOR SVCs

About 15,000 people in the United States have superior vena cava syndrome (SVCs), a blockage of the large vein that carries blood from the head and upper body to the heart. Signs of the syndrome, which is usually caused by a malignancy pressing on the vein, include facial swelling, headache and visual disturbances.

"The superior vena cava syndrome is often clinically striking but rarely requires emergency intervention," said Lynn D. Wilson, M.D., M.P.H. '86, professor and vice chair of therapeutic radiology and professor of dermatology, lead author of a paper published in *The New England Journal of Medicine* in May. In the paper, Wilson and colleagues argue for dealing with the underlying cause—the tumor.

Wilson said, "Deterring from a multidisciplinary management plan and focusing only on the effects of the syndrome should be discouraged."

—John Curtis



## Antidepressants shown to nurture neurons

**Yale scientists find that a growth-inducing protein plays a role in fighting mood disorders.**

Doctors warn patients starting on antidepressants that they will have to wait weeks for the effects to kick in. Marketing materials for the drugs claim that the medications correct imbalances of neurotransmitters in the brain. So why must patients wait?

That lag time sparked the curiosity of Ronald S. Duman, PH.D., the Elizabeth Mears and House Jameson Professor of Psychiatry and Pharmacology. It was clear, he said, that the drugs' effects on neurotransmitter levels cannot fully explain why the drugs can help relieve depression. "You have to wait for something else to happen," says Duman.

Duman and graduate student Jennifer L. Warner-Schmidt have now shown that the "something else" can be attributed in part to a growth-inducing protein called vascular endothelial growth factor (VEGF). In a March 13 article in the *Proceedings of the National Academy of Sciences*, they reported that the neurotrophin VEGF is necessary for antidepressants to work in preclinical models.

In previous rodent studies, Duman had found that sustained use of antidepressants and electroconvulsive therapy (ECT) causes new cells to proliferate in the hippocampus, a brain structure that plays a vital role in memory, emotion and learning. The hippocampus shrinks under long-term stress, and Duman showed that by spurring the growth of new neurons, antidepressant drugs reverse or block the effects of stress on the hippocampus.

Duman and Warner-Schmidt have now linked VEGF to neurogenesis in the hippocampus. They showed that two classes of antidepressants and ECT increase the levels of VEGF, while blocking the effects of VEGF thwarted neurogenesis in the hippocampus.

"Neurogenesis has become very interesting," said Duman. "Even the idea that you can make new neurons is exciting, and we think that neurotrophins contribute to the effects of antidepressants."

Duman said that VEGF and at least one other neuronal growth factor, brain-derived neurotrophic factor, are necessary not only to allow neurogenesis but also to support the function of mature neurons. "Trophic factors are not just necessary for survival," he said. "They are also required for growth, and closely involved in normal function."

Still, Duman said, his discovery of the role of neurotrophins "is probably not the whole story. You can't explain the entire action of antidepressants through neurotrophins and neurogenesis." In the meantime, this new information about VEGF might provide new pathways for antidepressant therapies.

—Cathy Shufro





## Cyclic AMP, a molecule linked to stress, also plays a role in memory loss

Working memory, the sticky-note reminder system of the brain, holds on to temporarily needed information by forming transient neural networks that keep firing even as the brain ponders other matters. That way the message persists despite distractions. Unless, of course, the network is broken—in which case that mental note to pick up your dry cleaning after work vanishes into your cerebral ether.

After two years of experimentation in three animal models, Yale researchers led by Amy F.T. Arnsten, PH.D., professor of neurobiology, have identified the molecular mechanism that can make or break a neural network representing a short-term memory. These findings open the door to understanding what causes cognitive function to falter and how to treat several mental disorders.

They found that a molecule called cyclic adenosine monophosphate (cAMP), which accumulates in times of stress and in the brains of persons with certain mental disorders, disconnects the neural networks in the prefrontal cortex by forcing open certain ion channels, much like tripping a circuit breaker to halt the flow of electricity. To keep the networks functioning, these channels, called hyperpolarization-activated cyclic nucleotide-gated (HCN) ion channels, must remain closed. They get some help from another type of molecule found next to HCN channels, the alpha 2A adrenoceptor, which, when activated, strengthens the neural networks and keeps them connected by preventing cAMP production.

Alpha 2A adrenoceptors are naturally stimulated by the neurotransmitter norepinephrine, but medications like guanfacine, an antihypertensive agent, also activate them, as the Yale group showed in their paper published in April in the journal *Cell*. It has long been known that guanfacine can improve the performance of working memory, and the drug is now being used to treat several prefrontal cortical disorders, but how it works has remained a mystery until now. Spurred by intriguing data from the lab of David A. McCormick, PH.D., professor of neurobiology, the group began to explore the role of HCN channels. "This is an extraordinary example of knowing how a drug works all the way to the level of an ion channel," said Arnsten.

Excessive HCN channel opening, she said, likely underlies lapses in cognitive function caused by stress, normal aging and several mental disorders, including attention-deficit hyperactivity disorder (ADHD), schizophrenia and bipolar disorder.

With this new finding, researchers can now pursue drug therapies for memory-related disorders involving the prefrontal cortex.

—Kara A. Nyberg



et cetera ...

## CHLAMYDIA MORE PREVALENT

Young women between the ages of 14 and 19 are getting infected and reinfected with chlamydia at a rate higher than previously reported, according to a study published in the *Archives of Pediatrics and Adolescent Medicine* in March.

Linda M. Niccolai, PH.D., assistant professor of epidemiology (microbial diseases), tracked 411 young women over four years. More than half were diagnosed with the sexually transmitted disease and almost 30 percent reported repeated infections. Niccolai attributed the high rate of recurrent infection to multiple sex partners, lack of condom use and inadequate treatment of the young women's sex partners.

Niccolai said it is important to educate and counsel patients at the time of the initial diagnosis. "It is possible that young women think chlamydia is 'no big deal' because it is easily treated with a single dose of oral antibiotics," she said. Untreated, however, chlamydia can lead to pelvic inflammatory disease, complications of pregnancy, and sterility or reactive arthritis in men.

—John Curtis

## A SUPERBUG FROM IRAQ

Wounded soldiers returning from Iraq in the fall of 2006 were found to be carrying a "superbug" responsible for highly drug-resistant infections that spread rapidly in hospitals. The culprit is *A. baumannii*, a bacterium that causes pneumonia, meningitis, septicemia and urinary tract infections. Using a new and rapid method called high-density pyrosequencing, Yale researchers sequenced the bacterium's genome to learn how it functions, according to a report in the March 1 issue of *Genes and Development*. Analysis revealed that 17.2 percent of the bacterium's DNA that codes for protein is located in 28 so-called alien islands, sequences that originated in other micro-organisms.

"Drug-resistant bacterial infections are a rapidly growing problem in hospital settings, and now in difficult conditions of combat," said principal investigator Michael Snyder, PH.D., the Lewis B. Cullman Professor of Molecular, Cellular and Developmental Biology. "Having the genome sequence of this microbe is critical for understanding how it harms humans."

—J.C.

Author Sherwin Nuland in his Hamden, Conn., study: "Because life is finite, we recognize its value."

## Reeling in the years

A surgeon reflects on the loss of identity that comes with retirement and on how aging can bring renewal.

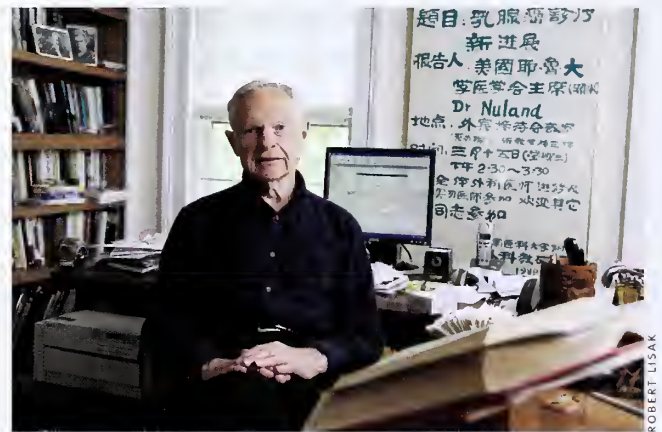
Doctors who retire must accept the painful fact that they will "no longer be seen as anybody's healer," said Sherwin B. Nuland, M.D. '55, HS '61, clinical professor of surgery. "Doctors have a great tendency to identify themselves by their calling, their profession, rather than by their humanity. Medicine is their identity."

Fifteen years after he gave up surgery to write books, Nuland, 76, still feels the loss of his identity as a physician: "I've relinquished my technical identity. I've relinquished the leadership of a team. I've relinquished my role as someone to whom a single individual can look for a healing touch." Although his writing career has not disappointed—he won the 1994 National Book Award for non-fiction for *How We Die: Reflections on Life's Final Chapter*, which has sold nearly a half million copies in the United States and been published in 24 languages—Nuland calls caring for sick people "the most important thing I did in my life."

In his 10th book, *The Art of Aging: A Doctor's Prescription for Well-Being*, Nuland interweaves advice, case studies and descriptions of the physical impact of time's passage. Growing old, he writes, is "simply entering another developmental phase of life." While his book provides a scientific survey of the diminishments of age—loss of agility, libido and immunity to disease—Nuland argues that aging can offer its own riches.

"There comes a point, probably in your late 50s, that you ought to start rediscovering yourself, the person you were before you went to medical school or journalism school or business school," he said. "You're rediscovering your humanity and beginning to separate yourself from a complete reliance on identification with that profession."

His own efforts at remaking himself have turned Nuland into "a gym rat." His workouts paid off when he joined a group of physicians on a trip to Sri Lanka in December 2004 to provide emergency medical care after the tsunami. Nuland said he easily kept up with much younger colleagues. (As a scholar, he may be motivated to exercise in part by one fact that he notes in the book: exercise causes



secretion of a brain-derived hormone that adds to the functioning of the cerebral cortex.)

As part of the renewal process, Nuland advocates writing. "You find out about your interests, about how you've synthesized life, things that you'd never discover if you didn't write. Most people have a lot more going on in their heads than they ever dreamed they had."

One pleasure of aging for Nuland is his love for his three grandchildren (with the fourth expected this fall). "It's not a question of my DNA continuing," he said. "It's a question of what my children have brought to their own lives, which is a great source of pleasure and wonder to me."

In contrast, the death of friends and mentors causes pain. "My advice is not to think that once that star has fallen out of your firmament that anyone can possibly replace it. ... Let yourself grieve for as long as you need to."

Still, Nuland does not wish that humans were immortal. "Because life is finite, we recognize its value. If life were infinite, we wouldn't understand anything about this treasure we have been given."

—Cathy Shufro

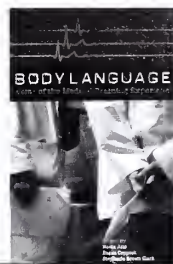
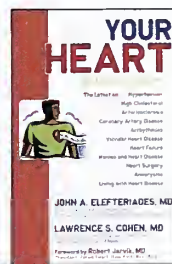
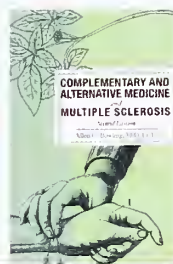
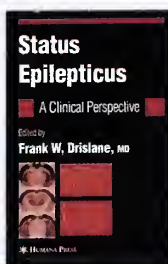
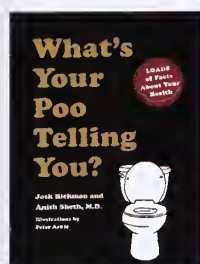


podcast

A podcast of Sherwin Nuland speaking on this subject can be found on the Yale page on iTunes U. Visit [itunes.yale.edu](http://itunes.yale.edu) or launch iTunes, then select Yale from the offerings under iTunes U. The podcast is included under "Yale Books & Authors."

*Bookshelf* focuses on books and authors at the School of Medicine. Send suggestions to Cathy Shufro at [cathy.shufro@yale.edu](mailto:cathy.shufro@yale.edu).





### What's Your Poo Telling You?

by Josh Richman and Anish Sheth, M.D., FW '08 (Chronicle Books) This adult version of the children's book *Everybody Poops* will help you understand what's going on with your body through what's in the toilet bowl. The book offers sidebars, trivia, unusual case histories and medical explanations of "poo" through witty illustrated descriptions.

### Appetite for Profit: How the Food Industry Undermines Our Health and How to Fight Back

by Michele Simon, M.P.H. '90 (Nation Books) This book provides a guide to the public relations techniques, front groups and lobbying tactics that food companies employ to market junk foods, especially to children. It also includes an entertaining glossary that explains corporate rhetoric, including phrases like "better-for-you foods."

### Status Epilepticus:

#### A Clinical Perspective

edited by Frank W. Drislane, M.D. '80 (Humana Press) This text reviews the many forms of status epilepticus (SE), their causes, manifestations, methods of diagnosis and appropriate treatments. The book focuses on the disease as encountered by the clinician in the field and the importance of correct recognition and diagnosis. Additional highlights include EEG reproductions that provide classic examples of patients with SE, a discussion of SE in very young children and neonates and an analysis of the cellular physiology and processes occurring in SE.

### Complementary and Alternative Medicine and Multiple Sclerosis, 2nd ed.

by Allen C. Bowling, M.D. '88, PH.D. (Demos) The second edition of this book reflects advances in the field since the book's initial publication. Therapies are organized alphabetically so that readers can pinpoint a specific treatment and learn about its origins, merits and possible uses in treating multiple sclerosis. Also discussed is the use of supplements, herbs, vitamins, acupuncture, biofeedback and other alternative treatments. This guide offers new options for relief when conventional therapies are limited, exploring which therapies are effective, low-risk and inexpensive and which are ineffective, dangerous and costly.

### Your Heart: An Owner's Guide

by John A. Eleftheriades, M.D. '76, HS '81, FW '83, chief of cardiothoracic surgery and the William W.L. Glenn Professor of Cardiothoracic Surgery, and Lawrence S. Cohen, HS '65, the Ebenezer K. Hunt Professor of Medicine (Prometheus Books) Heart disease remains the leading cause of death in the United States. The authors provide clear up-to-date medical information about such well-known problems as hypertension, high cholesterol and angina, and such lesser-known conditions as valvular heart disease, rheumatic fever and arrhythmia. They also discuss tests and diagnoses; life-style changes; medications and therapies; and such surgical procedures as valve replacement and heart transplants. A special section is devoted to women and their hearts.

### Body Language: Poems of the Medical Training Experience

edited by Neeta Jain, M.D., Dagan Coppock, M.D. '04, and Stephanie Brown Clark, M.D., PH.D. (BOA Editions) This anthology of 91 poems by medical students, interns, residents and attending physicians chronicles their challenging experiences. Physicians who are also poets address a diverse range of medical situations in this book, which offers insights into the inner world of people who regularly deal with life-and-death decisions.

### Sports Dermatology

by Brian B. Adams, M.D. '95 (Springer) This book gathers the most clinically relevant information in the emerging area of sports dermatology. Each sports-related skin condition—both the commonplace and the unusual—is discussed with attention to the following: epidemiology, clinical presentation, diagnosis, treatment and prevention.

### Acute Aortic Disease

by John A. Eleftheriades, M.D. '76, HS '81, FW '83, chief of cardiothoracic surgery and the William W.L. Glenn Professor of Cardiothoracic Surgery (Informa Healthcare) This source helps physicians examine and evaluate affected individuals in clinical or emergency care settings. Offering an array of illustrations, X-rays and operative photographs to emphasize key anatomic observations, this guide surveys the latest biologic, radiological, clinical and surgical developments in the field.

### DNA Vaccines: Methods in Molecular Medicine

edited by W. Mark Saltzman, PH.D., the Goizueta Foundation Professor of Chemical and Biomedical Engineering and professor of cellular and molecular physiology, Hong Shen, and Janet L. Brandsma, PH.D. '81, associate professor of comparative medicine and pathology (Humana Press) Divided into five sections, this volume contains state-of-the-art procedures for the latest DNA vaccine technology. Part I contains DNA vaccine design protocols, Part II presents methods for DNA delivery, Part III discusses current methods for enhancing the potency of DNA vaccines and Part IV describes several key areas of application in the field. The book concludes with a review of protocols for vaccine production and purification as well as applicable methods of quality control.

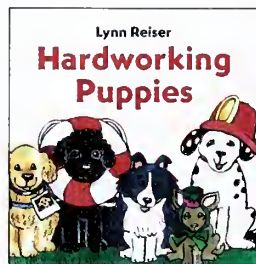
### Play = Learning: How Play Motivates and Enhances Children's Cognitive and Social-Emotional Growth

edited by Dorothy G. Singer, PH.D., senior research scientist in the Child Study Center, Roberta Michnick Golinkoff, PH.D., and Kathy Hirsh-Pasek, PH.D. (Oxford University Press) This book describes varieties of play—make-believe, storytelling and story-acting, and mathematical—and provides insights gleaned from more than 40 years of research linking play to increased attention span, creativity, constructive peer interaction and mental health. The book also discusses the value of play for children with autism and those who have suffered traumatic injury or loss.



Springer

LANSIS



### **Immunology of Pregnancy: Medical Intelligence Unit**

by Gil Mor, M.D., associate professor of obstetrics, gynecology and reproductive sciences (Springer) This book gives a complete review of current knowledge of the role of the immune system during pregnancy and the interactions between the placenta and the maternal immune system. It also covers in detail a range of hypotheses and studies related to the immunology of implantation and provides a practical approach to the application of basic reproductive immunology research to such complications of pregnancy as pre-eclampsia, preterm labor and intrauterine growth restriction.

### **Autism and Pervasive Developmental Disorders, 2nd ed.**

edited by Fred R. Volkmar, M.D., the Irving B. Harris Professor in the Child Study Center and professor of psychiatry, pediatrics and psychology (Cambridge University Press) This updated edition reflects the most recent progress in the understanding of autism and related conditions. Chapter topics include current approaches to definition and diagnosis; prevalence and planning for service delivery; cognitive, genetic and neurobiological features; and pathophysiological mechanisms. A new chapter covers communication issues, while the final chapter addresses the nature of the fundamental social disturbances that characterize autism.

### **Hardworking Puppies**

by Lynn Reiser, M.D. '70, clinical professor of psychiatry (Harcourt Books) This is a story for children between the ages of 3 and 7 about working dogs and their jobs. Like the song "Ten Little Indians," the book helps children learn to count backward from 10 to zero, as each puppy pairs up with a hardworking human—a firefighter, a clown, a lifeguard and a hospital volunteer, among others.

### **Retinal Degenerations: Biology, Diagnostics and Therapeutics**

by Joyce Tombran-Tink, PH.D., visiting associate professor of ophthalmology and visual science, and Colin J. Barnstable, PH.D., adjunct professor of neurobiology and ophthalmology and visual science (Humana Press) This book focuses on what is currently known about the environment, genetic factors and mechanisms that lead to retinal degenerations. It discusses new diagnostic techniques and innovative therapeutic modalities to preserve vision.

*The descriptions above are based on information from the publishers.*

**SEND NOTICES OF NEW BOOKS TO**  
Cheryl Violante, *Yale Medicine*,  
300 George Street, Suite 773,  
New Haven, CT 06511, or via e-mail  
to [cheryl.violante@yale.edu](mailto:cheryl.violante@yale.edu)

## **A librarian in the OR**

When medical librarian Denise Hersey, M.L.S., overheard Paul G. Barash, M.D., HS '74, professor of anesthesiology, joke that he wished he had a librarian in the operating room, she took him seriously. While Hersey does not enter the OR itself, she comes pretty close: every week she spends several hours answering questions in the anesthesiology lounge in Yale-New Haven Hospital's south pavilion.

Anesthesiologists face the universal problem of figuring out how to access information on the Internet. As Barash puts it, "You have a paradox: you have an overload of information and an inability to get it."

Hersey's regular visits to the OR suite solved that problem. As a librarian for liaison activities, she could use the visits to forge a connection between the library and the department. Anesthesiology faculty members and residents began asking for her advice on Internet search strategies.

Soon Hersey began brainstorming with the department's chair of education council, Viji J. Kurup, M.D., assistant professor of anesthesiology and assistant director of medical studies, to find new ways of searching the Web. They held a PDA-loading party at which they showed faculty and residents how to load electronic medical resources into their personal digital assistants.

Kurup and Hersey also enlisted residents to record definitions of anesthesiology keywords so that their fellow residents can listen to them on MP3 players in preparation for board exams. When Hersey noticed that the doctors kept hanging journal club articles on a bulletin board, she posted them on an electronic bulletin board.

"It's been fun," said Hersey, who now serves on the department's residency education committee.

Kurup knew that Hersey was making contributions but, like any good scientist, she wanted proof. A study Kurup conducted found that faculty and residents significantly increased their electronic searches for articles in key anesthesiology journals. Kurup presented her findings at the summer meeting of the Society for Education in Anesthesia.

Barash is enthusiastic, too. "It opens up all of Cushing Library to those whose hours don't let us go to the library." The medical librarians, he said, have "reinvented themselves."

—Cathy Shufro

*In Circulation* focuses on activities at the Cushing/Whitney Medical Library. Send suggestions to Cathy Shufro at [cathy.shufro@yale.edu](mailto:cathy.shufro@yale.edu).





MICHAEL E. LAMB

### Can children tell the truth? Evaluating claims of abuse

How, asked Michael E. Lamb, Ph.D., '76, should police, psychologists and social workers evaluate children's claims of sexual abuse? Speaking at pediatric grand rounds in April, Lamb, a professor at Cambridge University in England, said that a child's testimony may be the only evidence. "Most incidents of sexual abuse take place in private," he said. "In most cases, the primary source of information is the child."

But children's claims have received numerous courtroom challenges. Some forensic psychologists maintain that children can't remember, that they indulge in fantasy and that they can't distinguish between truth and inventions. These assertions, said Lamb, fail to withstand scrutiny. Children are just as reliable and truthful as adults, said Lamb, who wrote the protocol on interviewing children for the National Institute of Child Health and Human Development at the National Institutes of Health.

But proper interviewing methods are essential. Numerous studies have found that open-ended questions elicit far more accurate information than leading questions. "As much as possible, keep the focus on specific incidents," Lamb said. "The role of the interviewer is to let the child give you information. The less you say, the better the interview."

—John Curtis



LAURA KOUTSKY

### Advocating protection against cervical cancer

"This is my favorite topic," said Laura Koutsky, Ph.D., professor of epidemiology at the University of Washington School of Public Health.

Koutsky was referring to two human papillomavirus (HPV) vaccines, both of which protect women against cervical cancer, a disease that claims 250,000 lives a year worldwide. Merck's Gardasil was approved by the Food and Drug Administration in June 2006, while GlaxoSmith-Kline filed for approval for its vaccine, Cervarix, in March 2007. Koutsky's research on the HPV vaccine is supported by funds from Merck.

Koutsky gave an overview of the safety, efficacy and immunogenicity profile of the prophylactic HPV vaccines during a talk at the School of Medicine in April. Noting that HPV is highly contagious and widespread (in one study 28 percent of test subjects who had only one sexual partner became infected with genital HPV within 12 months), Koutsky recommended that the vaccines, which have been found to be successful in preventing infections, be "widely used and widely available."

Ideally, girls should be inoculated before they become sexually active. To parents uncomfortable with this recommendation, Koutsky said, "Teach your values," but also advised, "Children need age-appropriate protection from the consequences of sexually transmitted infections, and despite evidence to the contrary, most want their parents' help."

—Jennifer Kaylin



DAVID R. KOEPSSELL

### Granting patents on genes hinders biotech research

Companies shouldn't hold patents on genes any more than they should own the air we breathe, said David R. Koepsell, J.D., Ph.D., a Donaghue Initiative Visiting Scholar in Research Ethics at Yale University's Interdisciplinary Center for Bioethics, speaking at a lecture in June.

"I think the current situation, where about 20 percent of the genome is patented, is a disincentive for innovation and chills research," said Koepsell, a philosophy professor at the State University of New York at Buffalo. "It's not based in either good policy or logic."

Koepsell argued that genes found in nature do not fit into the current definition of intellectual property. They are neither inventions nor the expression of a new idea. Patents, he said, should reward novel uses of genes for tests and therapies, rather than simply the sequence of DNA itself. Patents are currently granted for both genes and their uses.

Some scientists say putting a stop to gene sequence patents could harm the biotechnology industry, but Koepsell disagrees. "In fact," he said, "I think it will create new opportunities for small players who want to come in who can't afford the licensing fees. I think it would actually be a boon for technology."

—Sarah C.P. Williams



SARAH L. BERGA

### Bringing values, relationships back into medicine

Sarah L. Berga, M.D., administered a dose of idealism to residents in the Department of Obstetrics, Gynecology and Reproductive Sciences during Residents' Research Day in June, calling on the young doctors to "make health the priority, not making money."

Berga, the James Robert McCord Professor and chair of the Department of Gynecology and Obstetrics at Emory University School of Medicine, delivered the 4th Annual Nathan Kase Lecture: "The Social Contract of Medicine." As healing has been transformed into a business and health has become a commodity, she said, the medical profession risks breaking its moral contract with society. "Many people feel we're not doing as well as we should," she said. "Leadership in medicine today is seriously failing." Part of the problem, Berga said, is that some doctors are "overly competitive." Others are so focused on the "technical aspects" of their profession that they give "short shrift to the big picture."

Berga's advice? "Integrate the concept of professionalism—the morals, values and relationships that underpin the trust the public has in doctors—into the business of medicine." She also recommends getting involved in the next presidential election.

—J.K.

# From the library's historical treasures

Students peruse first editions of the classic anatomy text by Renaissance physician Vesalius.

By Jill Max



THE HARVEY CUSHING/JOHN HAY WHITNEY MEDICAL LIBRARY (3)

In 1543, when Andreas Vesalius published his text of the human anatomy, *De Humani Corporis Fabrica Libri Septem* (*Seven Books on the Fabric of the Human Body*), he embarked on a revolutionary path. Today, *De Fabrica* is considered the first great book of modern medicine and the first publication to contain extensive illustrations based on observations drawn from human dissections.

"It's extraordinarily important because it's one of the first actual dissection guides to the human body," said Thomas P. Duffy, M.D., professor of medicine and director of the Humanities in Medicine program.

Three copies of *De Fabrica* and other works from the period were the subject

of a special session in April of the Humanities in Medicine Lecture Series, one of four yearly gatherings that introduces medical and nursing students to some of the historical treasures in the Harvey Cushing/John Hay Whitney Medical Library. "This is the only context in which students really get to see these things and hear about them," said Susan Wheeler, curator of prints and drawings. Donated by neurosurgeon Harvey Cushing, M.D., a founder of the library and the world's premier collector of Vesaliana, the collection includes two first editions of *De Fabrica*, one of which was given to Cushing by Sir William Osler, M.D., along with the revised edition published in 1555.

Each volume contains more than 400 meticulous illustrations derived from dissections, some carried out by Vesalius in public as he lectured to medical students, professors and religious and government leaders. Prior to Vesalius' instruction, anatomy had been taught primarily by studying the writings of Galen, the ancient Greek physician whose views, based largely on animal dissections, dominated medicine for over 1,300 years. Vesalius' attempt to clarify these early writings through direct observation has been seen by some as anti-Galenist, but in reality he sought to build upon Galen's work, correcting it where necessary.

The identity of the artist or artists responsible for the drawings remains a matter of debate, but some works are thought to have been done by Vesalius himself, while others may have been done by Stefan van Kalkar, a student of Titian.

Vesalius published *De Fabrica* when he was 28, five years after receiving his medical degree from the University of Padua. Coming from a long line of physicians, Vesalius had access to medical materials at a young age. As a student, he often visited the cemetery, where he and his classmates would blindfold themselves and attempt to identify the bones they found. Later when he began to teach, Vesalius created charts on which he drew pictures so that onlookers could follow what was happening during his dissections. Six of these drawings were printed on large sheets in 1538 to be used as guides for students and barber-surgeons, and are now known by the title *Tabulae Anatomicae Sex*. The popular publication was quickly plagiarized all over Europe. The contemporary German copy included in the library's collection is extremely rare.

Other highlights of the Vesalius collection include prints of *De Fabrica*'s most famous illustrations, the "muscle men," which depict progressively deeper dissections of the muscular system that were useful for both artists and



**OPPOSITE** The 16th-century physician Andreas Vesalius, shown in the illustration, wrote *De Humani Corporis Fabrica Libri Septem* (Seven Books on the Fabric of the Human Body) at the age of 28, five years after receiving his medical degree.

**BELOW** *De Fabrica* is considered to be the first great book of modern medicine. For the first time, a medical text contained extensive illustrations based on observations drawn from human dissections. Neurosurgeon Harvey Cushing, one of the founders of the Medical/Historical Library and the world's premier collector of

Vesaliana, donated three copies of the text to the library, including two first editions. Each volume contains more than 400 meticulous illustrations.

students. There are also two volumes by Vesalius' predecessors, the physicians Berengario da Carpi and Johannes Dryander, whose crude, incomplete drawings follow the tradition of using anatomical illustrations as memory aids, as opposed to the realistic representations made famous by Vesalius.

Shortly after publishing *De Fabrica*, Vesalius became physician to the Holy Roman Emperor Charles V and achieved renown as a surgeon. He is most widely recognized, however, for the exquisitely detailed book that is as impressive today as when it was originally published.

Jill Max is a writer in Connecticut.



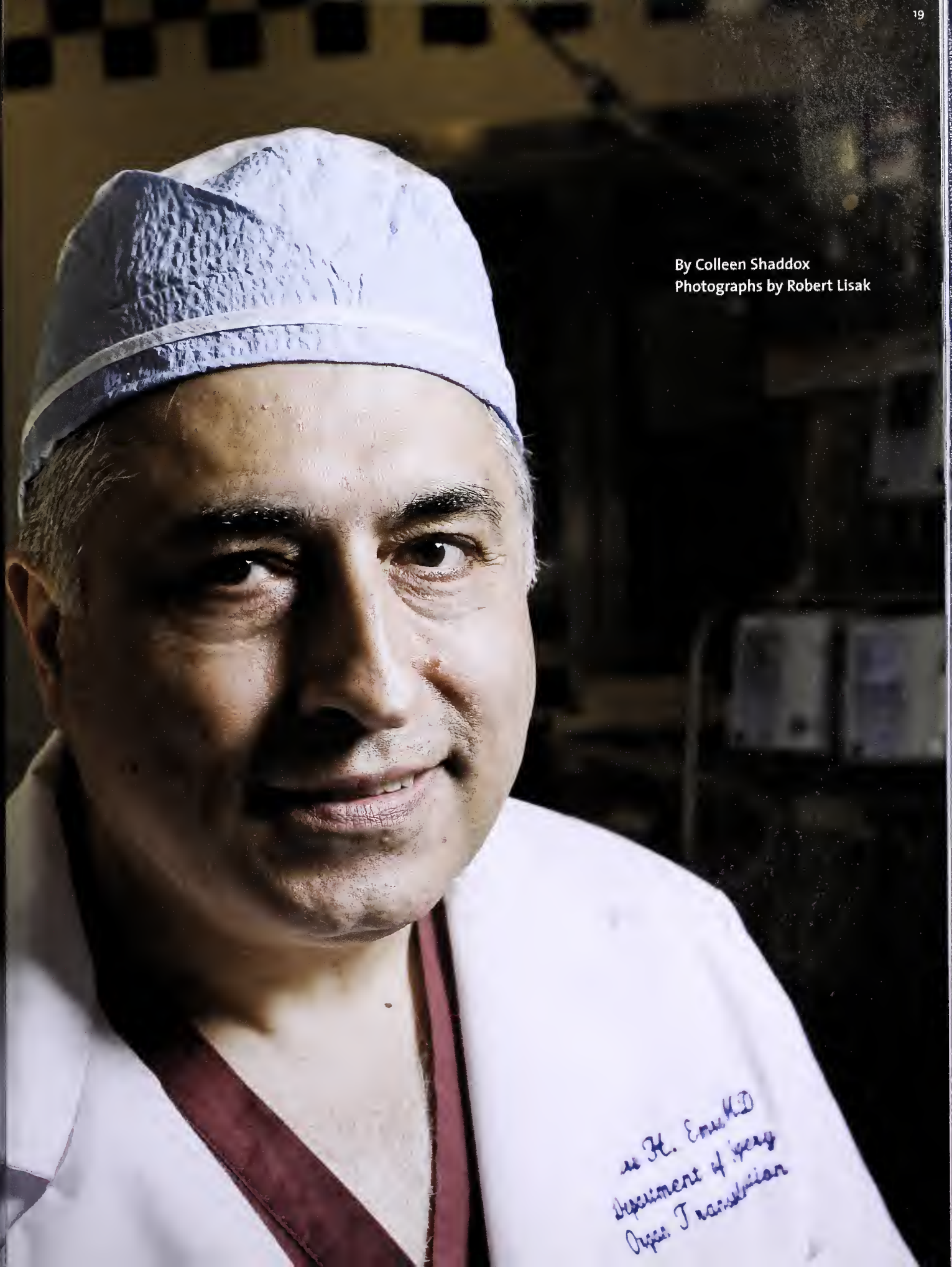


## Putting the fire back into Yale's transplant program

Liver surgeon **Sukru Emre** has high expectations for Yale's organ transplant program and his colleagues in the OR. He also displays a gentle, quiet confidence: "If you use your brain, your sweat and your heart," he says, "there is no way that you are going to be failing."

Sukru Emre calls transplant surgery "a complex matrix, not a discipline," requiring excellence and cooperation across departments.





By Colleen Shaddox  
Photographs by Robert Lisak

Dr. H. Enck MD  
Department of Surgery  
Organ Transplantation

When Prometheus stole fire from the gods, Zeus condemned him to have his liver eaten by an eagle every day. The myth, says surgeon Sukru Emre, M.D., shows that the ancient Greeks knew that the liver could regenerate—a property that makes it possible for Emre to take part of a healthy person's liver and use it to sustain another's life. The story of regeneration also serves as a metaphor for Emre's new role



Karen Lewis says she had "absolute confidence" in transplant surgeon Sukru Emre. Emre operated on her son, Christopher, who needed a transplant because of an aneurysm in his liver.

as chief of Yale's Section of Organ Transplantation and Immunology, where his charge is to revive a largely inactive liver transplant program while strengthening Yale's kidney and pancreatic transplant programs as well. Like the classic tale, this story has a hero: Emre himself, a transplant surgeon of international reputation whom patients and colleagues alike praise for his skillful innovation, work ethic and ability to empathize with patients and their families.

Emre prefers to think of himself as a team builder. "Could this work if a single part were missing?" he asks, pulling up his sleeve to reveal his watch.

Emre was director of the adult and pediatric liver transplant programs at Mount Sinai Medical Center in New York for five years before joining the Yale faculty in July. At Mount Sinai his pediatric team achieved a 98 percent one-year survival rate and a 92 percent five-year survival rate while increasing the patient census of 15 to 17 cases per year to an average yearly volume of 28 to 30 cases. He uses one of his favorite words to explain the success: chemistry. In this case, chemistry means getting everyone—from administrative assistants to nurses to specialists—to support one another and deliver outstanding patient care. Emre stresses that transplant surgery is "a complex matrix, not a discipline," requiring excellence and cooperation across departments.

And that is why Yale is making a \$12.5 million investment in its transplant section that will increase the number of surgeons, nurses and support staff, according to Robert Udelsman, M.D., M.B.A., department chair and the William H. Carmalt Professor of Surgery. Every area touched by transplant medicine, such as intensive care and diagnostic imaging, will improve as the transplant program grows, he said. Yale's strengths in hepatology, transplant immunology and vascular biology set the stage for collaborations between clinicians and bench researchers to improve the level of practice in this young branch of medicine. Emre's goal is to increase the current number of liver transplants at Yale from four or five a year to between 80 and 100; double the number of kidney transplants to 150; and bring the number of pancreatic transplants up to 20, a five- to 10-fold increase over present figures.

Obviously those ambitious goals will take years to achieve. Benjamin Shneider, M.D., the former chief of pediatric hepatology at Mount Sinai, says that nothing is beyond this surgeon. "One of the striking things about Sukru is that he won't accept defeat," says Shneider. He says he routinely saw Emre conquer "unsolvable clinical problems." Shneider recognized that preoperative evaluations of children to ensure that their anatomical structures would permit transplant surgery were "irrelevant" because Emre would always find a solution in the operating room.

Paul M. Sethi, M.D., an orthopedic surgeon in private practice in Greenwich, Conn., and a former student of Emre's, says his mentor implored him not to "accept the



standards, the norm. ... He taught me to use my brain and my hands at the same time for the patient," Sethi said.

But there is no true norm in transplant surgery, a relatively new field. The first liver transplant took place only 40 years ago and many immunosuppressant drugs became available only in the 1990s. Transplant surgeons literally make the norms as they go along while dealing with significant barriers to success, including transplant rejection and shortages of organ donors. Emre specializes in the field's most technically difficult area, pediatrics, in which procedures are necessarily in constant evolution. Transplant possibilities are limited by the patient's size. He routinely performs transplants on adult patients as well, however. Emre has been particularly successful in addressing the shortage of donors through split-liver transplants, in which sections of a single liver are used to serve two patients, a child and an adult; domino transplants, in which the liver removed from one patient undergoing transplantation may still serve another patient with a shorter anticipated lifespan; and living-donor liver transplantation, in which a section of healthy liver is transplanted from a living donor into a recipient whose liver has been removed.

### A complete physician

Emre came to the United States from his native Turkey in 1988 to study transplantation. After his fellowship at Mount Sinai was completed, he made the difficult decision to stay in New York because he felt America would offer his children better educational opportunities. Transplant surgery attracted him because of the depth and breadth of medical knowledge it requires. "That makes you a complete physician," he says.

A complete physician is also available and sympathetic to patients, a challenge for a surgeon who may be performing an 11-hour operation on any given day. But patients say that Emre—not one of his assistants—responds to phone calls and e-mails within 24 hours.

Extended conversations with Emre convinced Phil and Lisa Brudos to fly their 11-year-old daughter, Marie, from Chicago to New York so that Emre could operate on her. Marie's case was complex. Born with autosomal recessive polycystic kidney disease and congenital hepatic fibrosis, she needed both kidney and liver transplants and, in the opinion of some surgeons, should also have had her spleen removed. Emre outlined a strategy to avoid removing the spleen. "I sent him pages and pages of questions. I called two or three times a week," Brudos recalls. "Dr. Emre was unbelievable in his compassion and concern." Three years after the transplants, Marie is thriving.

Judy Gilman, a nurse from New Jersey, appreciated the time Emre took to "explain everything you could possibly ask" when she had her transplant. "He was wonderful, truly a compassionate, sensitive man."

Twelve-year-old Christopher Lewis from Killingworth, Conn., is also doing well more than two-and-a-half years after his emergency liver transplant, necessary because of an aneurysm in his liver. Upon the recommendation of Yale physicians who sent Christopher to Emre in New York, his mother Karen Lewis found herself riding in an ambulance to Mount Sinai from Yale-New Haven Hospital as her 10-year-old son was failing rapidly. Emre had to remove Christopher's liver even before the donor organ arrived. "I'll take care of him like I would if he were my own," Emre reassured the terrified mother.

"I could tell he meant it," recalls Lewis, who became the donor of last resort for her son's transplant. "He must love his job."

Emre would agree: "Everything grows with love. You've got to love what you do. Otherwise it becomes a burden and you can't carry it." Still, there are such moments as the fifth-birthday party for his daughter, Gulus, when his beeper went off. Emre apologized to the girl for leaving. "That's okay," she said through tears. "You're going to save lives."

"That's all my wife," Emre says. She instilled a deep appreciation in her children for their father's work, he explains. Umit Emre, M.D., a pediatric pulmonary specialist, has consistently supported her husband's demanding career while tending her own specialty and taking more than her share of responsibility at home, he says.

His children are never far from his mind, particularly whenever a pediatric liver donation arrives—a chance of life for one child arising from the death of another. "I go home and I thank God my kids are healthy," he says. If he missed a few birthday parties, Emre has made it to the debate competitions, the Carnegie Hall recitals and many other milestones in the lives of the three daughters he praises with obvious relish. And perhaps their successes have something to do with the life lesson he often repeats to them: "If you use your brain, your sweat and your heart, there is no way that you are going to be failing."

It's a lesson he'll employ at Yale. "One of the best universities in the world deserves a great transplant program. That's my nature; I accept a challenge," he says. "And I don't give up." **YM**

Colleen Shaddox is a freelance writer in Hamden, Conn.



A podcast of Sukru Emre speaking about organ transplantation and reasons to be an organ donor can be found on the Yale page on iTunes U. Visit [itunes.yale.edu](http://itunes.yale.edu) or launch iTunes, then select Yale from the offerings under iTunes U. The podcast is included under "Yale Health & Medicine."







# The gospel according to Langer

By Pat McCaffrey

**Three Yale engineers learned their trade working alongside a legendary MIT professor who believes in thinking big.**

One of the most influential people in Yale's fledgling Department of Biomedical Engineering (BME) is not on the faculty, nor is he a student. He never attended Yale, though he received an honorary degree at Commencement in May. In fact, he has never held any position in New Haven, and works miles away in Cambridge, Mass. Nonetheless, his picture hangs prominently in the office of W. Mark Saltzman, PH.D., the department chair, and his vision permeates daily life in the BME labs in the Malone Engineering Building on Prospect Street.

This potent force is Robert S. Langer, SC.D., Institute Professor and the Kenneth J. Germeshausen Professor of Chemical and Biomedical Engineering at the Massachusetts Institute of Technology (MIT), and mentor to a new generation of Yale engineers bent on inventing their way around any obstacle to improve the diagnosis, treatment and prevention of disease.

Want to deliver a killing blow to stubborn brain tumors? Try surrounding them with chemotherapeutic wafers that leak a toxic drug onto nearby cancer cells and leave healthy tissue alone. Need to mend a spinal cord, severed in a disabling accident? Try implanting a plug of plastic polymer seeded with stem cells. Running out of healthy blood vessels to replace damaged arteries during a heart bypass? Take tissue-engineered vessels off the shelf, ready-made like replacement parts for a car.

The first of these visions is now reality thanks to the work of Saltzman, the Goizueta Foundation Professor of Chemical and Biomedical Engineering and professor of cellular and molecular physiology. The others are dreams in progress: Erin Lavik, SC.D., assistant professor of biomedical

engineering, has successfully repaired broken spinal cords in rats, preventing paralysis and restoring the animals' ability to walk. Laura Niklason M.D., PH.D., associate professor of bioengineering and anesthesiology, is on the verge of testing manufactured blood vessels in people.

All three began their groundbreaking work in the Langer lab. By their own accounts, Langer is a daunting role model (See sidebar). A hard-working and phenomenally successful researcher and inventor, he also finds time to be an attentive and thoughtful advisor, and even a booster when cheerleading is called for. Most importantly, they say, Langer is a visionary who believes that nothing is impossible. And somehow he has inspired a new generation of engineers to believe that, too.

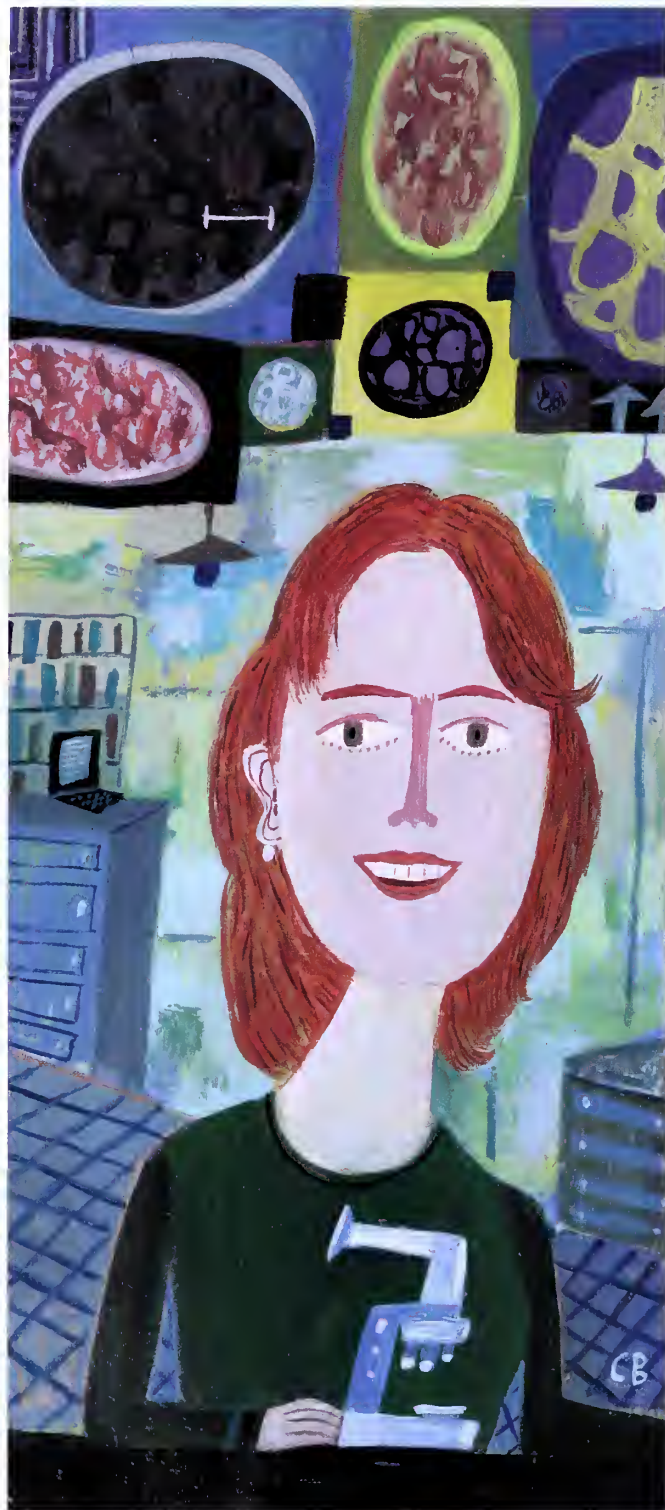
As the heirs to his scientific legacy, the three Yale engineers have found success by taking Langer's favorite advice to heart. Langer sums it up in five simple words:

"Think big. Don't give up."

## Delivering the goods

As a graduate student in the Langer lab, Saltzman remembers sitting with colleagues and trying to analyze what made Bob, as everyone calls him, so successful. What special combination of attributes would young researchers need to cultivate just to approach their mentor's achievements? "We never quite figured it out. We knew that Bob is ridiculously brilliant and that he works really hard," Saltzman says. "Brilliance is hard to emulate, but one thing we figured out is that we could always try to work really hard."

Mark Saltzman, chair of biomedical engineering, is one of the three faculty members who trained under MIT professor Robert Langer.



When Erin Lavik was thinking about a switch from materials science to biomedical engineering, she found "Mecca" in Langer's lab.

By working hard, Saltzman has come far. He runs a lab, teaches undergraduates and graduate students, and has written three textbooks, on tissue engineering, drug delivery and polymer chemistry. He has won awards for research and teaching at every stage of his career. Since he arrived at Yale in 2002 to form the new department, he has seen his faculty group grow to 19 members. That number includes researchers from other departments gathered at last in one place, plus three new recruits.

But back in 1981, as Saltzman was finishing his undergraduate degree in chemical engineering at Iowa State, he was adrift. After four years he realized that he had no interest in manufacturing or going into the oil industry—the things that chemical engineers usually do. Fortunately, he happened into a lecture on biomedical engineering, and he was hooked. "I saw that the things I knew how to do could be used in a different way than I'd ever thought."

At MIT, he found a kindred spirit in Langer, who had also veered toward biology from chemical engineering. Langer's claim to fame at that time was his invention of biodegradable polymers for drug delivery. These pellets and wafers of honeycombed plastic could be loaded with proteins or medicines and implanted within the body. As the polymers slowly broke down in blood or cells, the capsules delivered the goods, then disappeared. Because of the packaging's novel porous structure, it could deliver molecules that were far larger than previously possible. For his doctoral thesis, Saltzman studied the molecular properties of the polymers and fine-tuned them to deliver proteins and other therapeutics.

After receiving his Ph.D. in 1987, Saltzman left for a faculty position at Johns Hopkins University and took along some advice from his mentor. Langer suggested that he focus on drug delivery to the brain, an interesting and unexplored area. Even more important, Langer introduced Saltzman to a young neurosurgeon, Henry Brem, M.D., now the Harvey Cushing Professor of Neurosurgery, neurosurgeon in chief and chair of the Department of Neurosurgery at Hopkins.

With Langer supplying the biodegradable polymer, Saltzman and his colleagues developed ways to load it with carmustine, a cancer drug, and track the medication's release, while Brem led the testing in patients. The result was Gliadel, a dime-sized, drug-impregnated wafer that surgeons now use routinely to extend the lives of patients with deadly brain tumors. In 1996, Gliadel became the first of the polymers to be approved by the Food and Drug Administration for human use.

"Bob has a knack for getting the right people together," Saltzman says. The ability to be a scientific matchmaker is critical in biomedical engineering, a discipline in which you do not get very far on your own, Saltzman says. "We borrow skills and techniques from so many different places, you must have those connections."



When Saltzman was recruited to head up the new biomedical engineering department, he recognized Yale as a good place to foster such connections. He cites the medical school's Interdepartmental Program in Vascular Biology and Transplantation (VBT) as just one example. "We have cell biologists and immunologists and surgeons and pathologists and bioengineers all working together in an ideal environment for interdisciplinary work. I think that's a very rare happening among universities," he said.

Today, Saltzman continues to work on drug delivery to the brain, and he is also working with colleagues at Yale on genetically engineered blood vessel cells that could be turned into vascular bandages for restoring blood supply to damaged tissue.

### **Making a difference**

Lavik spent 11 formative years at MIT, receiving a bachelor's degree and a master's in materials science, and then completing her S.C.D. in the Langer lab. She is not only a stellar researcher, but also a writer and director of plays and a master cake decorator. She lives in Davenport College, where she is a resident fellow.

As an undergraduate, Lavik intended to study civil engineering. But the minutiae of cement dam construction left her cold, so she switched to materials science. She even started graduate school working on the same topic, but as interesting as it was, she feared her work would never change anyone's life. She wanted to do something that would have a bigger impact on the world.

Lavik was considering leaving MIT when by chance her mother set her on a new course. Flying home to Virginia from a visit to MIT, Mrs. Lavik found herself chatting about her daughter's predicament with her seatmate, who turned out to be Martha L. Gray, Ph.D., the Edward Hood Taplin Professor of Medical Engineering and Electrical Engineering at MIT. "Mom called me up all excited and told me Martha Gray told her I should consider going into biomedical engineering, and think about biomaterials," Lavik remembers.

After talking to Gray, Lavik made the rounds of biomedical labs at MIT. "It was clear that Bob's lab was Mecca," she says.

Taking a cue from a friend who worked on new treatments for spinal cord injuries, Lavik saw her chance to make a difference. Lavik envisioned using engineered tissue to replace broken pieces of spinal cord, reconnecting severed nerves and allowing patients to overcome their injuries.

She saw a chance to use what she knew about materials, but with little background in biology, Lavik was taking a big risk. Over the next five years, she created and tested polymer scaffolds, searching for the perfect structure to support the growth of neuronal stem cells and replicate the complex architecture of the spinal cord. The gamble paid off, and by 2002 Lavik had developed an implant that gave rats with

severed spinal cords a full recovery. In 2003, that success earned Lavik a coveted spot among rising research stars when she was chosen as one of the *MIT Technology Review* magazine's top 100 innovators under 35.

Since coming to Yale in 2003, Lavik has continued using animal models to improve the spinal cord implant, but more work is needed. She is also finding ways to protect other types of neurons that can undergo injury or degeneration. Her lab is trying to make a replacement retina, and she is collaborating with researchers in Boston and Denmark on the controlled release of nerve growth factors into the eye to help preserve neurons at risk of dying. All these experiments are still in the animal testing stage.

Lavik remembers a demanding but encouraging environment in the Langer lab. "There is definitely a sense of sink or swim, but the upside is that we had incredible resources. I had no background in the field, and really no business doing this research, but Bob supported it financially and intellectually."

From Langer's example, Lavik said she realized that her work would be only as good as her students. She also saw clearly that her job is to facilitate their research. "I am blessed to have some of the best students I could possibly hope for, and the most important thing for me is to make sure they are well-funded and have the support they need to do the work they want to do."

The direction those students are now pursuing under her guidance addresses a problem at the center of tissue engineering. Lavik wants to find ways to create scaffolding for blood vessels. A vascular network is a critical step to making a template for engineering new tissues. "One of the reasons tissue engineering started with cartilage is that it's not very vascularized. The spinal cord, however, is a highly vascularized tissue. Our hope is that if we can start to make stable microvascular networks, we can use that as a basis for engineering other tissues," she explains.

"A lot of people have done beautiful work making microvascular networks, but it has been hard to make those networks stable," Lavik says. Recently, she figured out a way to do just that.

In the body, vascular cells normally live in close proximity to neuronal cells. It occurred to her that they might be helping each other out. She came up with the idea of using a mixture of neuronal stem cells and blood vessel endothelial cells to seed a 3-D scaffold. To make the scaffold, Lavik produced a water-soluble polymer that looked like a network of microscopic blood vessels. Then, she cast a more stable polymer around it. Finally she dissolved the first scaffold to leave a lacy network of pores in which endothelial cells and neuronal cells could interact to form a vascular bed.

In collaboration with Joseph A. Madri, M.D., HS '76, Ph.D., professor of pathology and of molecular, cellular and developmental biology, Lavik started to grow cells on the



Another Langer disciple, Laura Niklason, is developing off-the-shelf blood vessels for use in the operating room.

scaffold. The researchers found that mixing neuronal stem cells and endothelial cells on the new support resulted in blood vessels that last up to 12 weeks, compared to just a few weeks for previous attempts. When they put the whole assembly under the skin of a mouse, the implant fused with the mouse blood supply, and they could watch under a microscope as blood filled the engineered vessels. Best of all, the blood was still flowing three months later.

#### An idea from the OR

Unlike her fellow Langer alumni, Laura Niklason did not start out as an engineer. She knew early on that she wanted to be a physician-scientist, and after completing an undergraduate degree in physics she went right into the M.D./PH.D. program at the University of Chicago. It was much later, while working in the operating room, that she decided to grow blood vessels for a living.

That was in January of 1995, after Niklason had moved to Boston for a residency in anesthesiology. In her spare time, besides caring for two small children, she joined the Langer lab as a postdoctoral research fellow. "I thought tissue engineering was the coolest thing in the world and I wanted to do that," she says.

The urge to grow arteries came directly from her clinical work. In the operating room, she would witness vascular and heart surgeons searching their patients for spare veins, often finding only vessels of very poor quality. "I'd think, gee, wouldn't it be great if we had some replacement vessels we could pull out of a jar?"

At the time, researchers were just starting to understand how to get blood vessel cells to form microscopic tubes in a petri dish. The Langer lab was the perfect place for Niklason to pursue her dream of growing whole arteries. Because he has such an outstanding track record and a large group, she explains, Langer can place many bets, starting new lines of research. And he is willing to make some very risky bets on new ideas, knowing that he needs only a few successes to keep the whole enterprise going.

"For me, that situation was wonderful. One day I walked into Bob's office and announced, 'I'm going to grow an artery.' He said, 'That's great, Laura. You do that.'"

It was a gutsy move for a young researcher, and the venture turned scary—the project yielded no results whatsoever for two years. But in the third year, Niklason discovered the trick of putting the blood vessel cells on polymer tubes in an incubator and nourishing them by pumping a blood-like nutrient solution through the tubes. By mimicking the natural forces that blood generates when it flows through vessels developing in the body, she had found a way to produce strong, supple artificial arteries. The homegrown vessels were comparable in strength to real arteries, and when she installed them in pigs, the blood flowed.



These are not the lacy microscopic networks of vessels that Saltzman and Lavik are working on, although Niklason is interested in those, too. What she's grown are sturdy tubes about the length of a pencil and only slightly thinner. These are the plumbing supplies for heart and other bypass operations when large, hardy vessels need to be replaced. Niklason launched a company in 2005 to develop the vessels for clinical use; the firm has produced fully human engineered arteries with "spectacular" properties, she says, which are now being tested in baboons.

Niklason's confidence was tested at Duke University, where she went after leaving Langer's lab. During her first years there she wrote 30 grant applications before accruing enough funding to run her lab. "I started to think, 'Well, maybe my ideas aren't very good after all, and maybe I really can't do this.' At that time Bob was very stalwart and kept telling me, 'Your ideas are very good, Laura, just keep working at it.' " Eventually, the money started coming in, and today she supports a lab of 12 researchers working on arteries and heart tissue.

Niklason joined the Yale faculty one year ago. The growing bioengineering group, together with what she calls the "world-class" VBT program, was a combination she could not pass up. Her current work involves collaborations with her BME colleague Themis Kyriakides, PH.D., assistant professor of pathology, and several VBT researchers, including program head William C. Sessa, PH.D., professor of pharmacology, and former head Jordan S. Pober, M.D. '77, PH.D. '77, professor of pathology, immunobiology and dermatology.

"Yale is unique in having a collection of people who all think about blood vessels on many different levels," she says. "What's more, they all talk to each other—that's absolutely unique in my experience, and was very important to my decision to come here."

"Of course, having other Langerites here was a draw, too," Niklason says with a laugh. She and Saltzman have worked together on several large grant applications to expand the research activities in the department. With Lavik, she has made a bond that never existed at MIT, even though they overlapped in the Langer lab for a year. "Bob's lab was so large, and since I was 'vascular' and she was 'neural,' we didn't intersect very often," Niklason says. At Yale the two meet frequently. With their shared experience and vision, they are not only upholding the Langer legacy but at the same time creating their own. **YM**

Pat McCaffrey is a freelance writer in Boston.



## An honorary degree for a leading light in biomedical engineering

At Yale's 2007 Commencement, the university bestowed an honorary doctor of science degree on Robert S. Langer, sc.D., Institute Professor and the Kenneth J. Gerneshausen Professor of Chemical and Biomedical Engineering at the Massachusetts Institute of Technology. Langer was honored for his unequaled contributions to biomedical engineering—more than 600 patents granted or pending in pioneering new technologies ranging from transdermal patches and microchips that deliver precise drug doses to "manufactured" muscle and organ tissues.

The Yale honor was the latest in a long line of accolades for Langer, 58, an innovator who was among the first to perceive the benefits of marrying engineering and biology. His work has shaped the fields of drug delivery, biomaterials and tissue engineering, the three main branches of biomedical engineering.

His scientific achievements are superlative. Election to one of the National Academies (Academy of Sciences, Academy of Engineering, Institute of Medicine and National Research Council) is a career-capping honor for many scientists; but in 1992, when he was 43, Langer became the youngest person in history to be elected to three. In 2002 he received the Charles Stark Draper Prize, considered the equivalent of the Nobel Prize for engineers, from the National Academy of Engineering. In 2005 he was named an Institute Professor at MIT, the highest honor bestowed by MIT faculty on one of their own.

A prolific inventor, Langer's enthusiasm and flair for licensing his inventions helped to destigmatize the notion that academic researchers could work with companies to translate their research into useful products. In addition, his lab is a premier training ground for new biomedical engineers. By his own estimate, more than 400 people have come through the lab since he came to MIT in 1977, and many of those have gone on to stellar careers in their own rights.

Behind the formidable résumé lies a person who is disarmingly humble about his own achievements and irrepressibly upbeat about his students. The secret of his success? "I just try to get really bright people into my lab, and give them all the support and encouragement they need," says Langer. Of his three Yale-based progeny, he says, "They are all terrific in different ways, and are all having great careers." He uses words like "super smart" and "super nice" and "terrific" to describe each of them, and then adds, "They are all people I'm very fond of."

Saltzman, Lavik and Niklason all give the impression that the feeling is mutual. Last July, Saltzman joined with other Langer lab alumni to organize a tribute to their mentor. They put on a four-day symposium marking the 30th anniversary of Langer's seminal publication in *Nature* describing the use of polymers for drug delivery. The event drew more than 400 attendees.

"We started out to plan a casual get-together of people from the lab," Saltzman said. "But it was unbelievable how many people wanted the chance to publicly say 'thank you,' who were fighting for that chance."

At the gala, Niklason spoke about lessons learned in her time with Langer, and Lavik baked a decadent flourless chocolate torte for the honoree, who is known for his love of anything chocolate.

It was a well-deserved tribute, if a bit strangely timed, Saltzman said. "No one has had a bigger impact on the field than Bob, but this was a celebration you might expect for someone who is retiring or turning 80. But I don't believe Bob has hit his peak yet."

—P.M.



podcast

A podcast of Mark Saltzman and Laura Niklason speaking about advancements in biomedical engineering can be found on the Yale page on iTunes U. Visit [itunes.yale.edu](http://itunes.yale.edu) or launch iTunes, then select Yale from the offerings under iTunes U. The podcast is included under "Yale Engineering & Technology."



## A busy but balanced life

When Hylton Mayer, M.D., HS '06, FW '07, was a student at the Medical College of Ohio, he participated in medical missions to Ecuador and Honduras. While he found the experience worthwhile, there was something unsatisfying for him about leaving the villagers with

boxes of antibiotics "and then just flying away." He realized he wanted to specialize in a field of medicine where he could make a more lasting impact on patients' lives.

He chose ophthalmology because helping patients preserve and restore their ability to see met that standard. He also wanted to specialize in a field of medicine

that wouldn't take over his life and leave him with no time for anything else. "Ophthalmology is reputed to have a reasonable lifestyle," he said. "I've always enjoyed balance in my life. I didn't want to be overwhelmed by work."

Which isn't to say that Mayer works the proverbial banker's

►► PAGE 30





# Taking the E-ROAD

A recent Yale graduate reflects on the desire of younger doctors for a fulfilling life outside of medicine.

By Jennifer Blair, M.D. '04  
Photographs by Julie Brown

In my emergency medicine residency, we all share the jeopardy pager. Like a hot potato, it is passed among house staff who take turns hoping they won't be called in to replace a sick resident.

My colleagues know that I loathe the idea of doctors working while ill. In my world IVs are commonplace, but I think anybody sick enough to need one shouldn't come to work. I urge interns, who are uncertain of what may be forgiven, to call in sick if they must.

So my convictions were tested on a sunny fall Sunday when the jeopardy pager went off. One of the interns, a former orthopaedics resident who had switched to emergency medicine, called in sick with vomiting and diarrhea. As that day's "jeopardy" resident, I would have to work her shift in the pediatric ER. There went hiking, doing laundry and movie night. I drove to the hospital, reminding myself that she was just doing what I'd recommended.

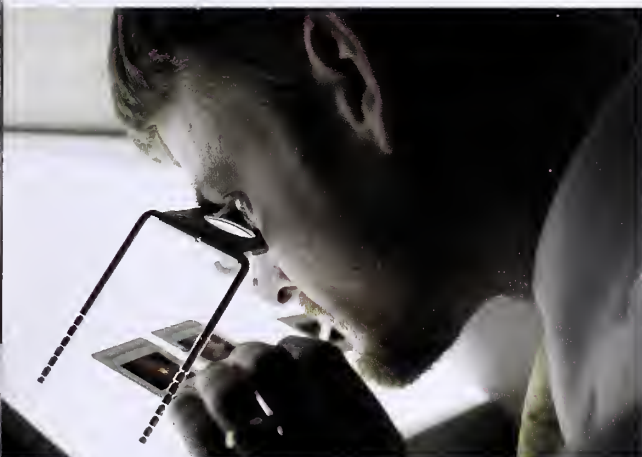
When the shift ended, I called to see how she was. She apologized for her absence, but I had to tell her she'd done the right thing. What good is it to come to work, only to spread your germs around or run to the bathroom every few minutes? As a purely practical matter, how can you safely resuscitate a critically ill person while you are wracked by nausea and lightheadedness?

"I still feel this surgeon's guilt for not coming in," she confessed. "I worked through kidney stones when I was in orthopaedics."

I found that hard to believe.

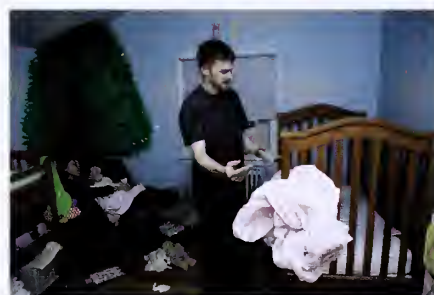
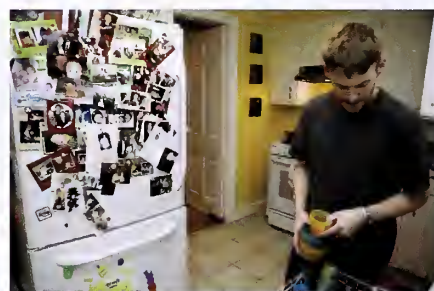
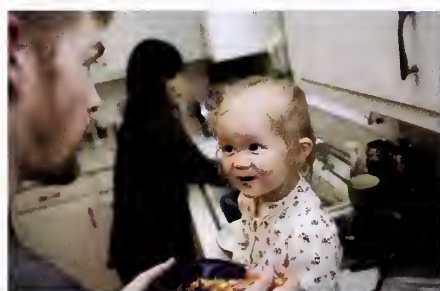
"The attending told me he couldn't spare me. I took Motrin. I cried during the whole surgery. Then I went home and passed out on Percocet."

My colleague left her surgical residency to join ours in emergency medicine, along with five other former surgery and



Ophthalmologist Hylton Mayer spends his days seeing patients and performing eye surgeries. His chosen field permits a balanced life, he believes.

Ophthalmology allows Mayer time to spend with his wife, Patricia Seo-Mayer, and their daughter, Mia, 2.



hours. The day he spoke with *Yale Medicine* was his first day as an assistant clinical professor, so he was still waiting to see what his work schedule would be like. But prior to his new appointment, his days as a glaucoma fellow began at 8 a.m. (an hour earlier if he had a lecture or a meeting) and ended at about 6 p.m. He worked four days a week in the clinic and one in surgery.

On clinic days, he saw between 40 and 60 patients—new patients and others needing ongoing or postoperative care. He performed diabetes screenings and eye exams for patients (children and those with special needs) who needed to

be under anesthesia. On his surgery day, Mayer typically performed six procedures, mostly for glaucoma, but also for cataracts.

"The hardest part was dealing with the unpredictable," he said. "Handling 30 patients a day isn't a problem, but if you had a difficult patient, or one who has lots of questions, it throws your schedule off."

Any wrinkle in the schedule can pose problems for Mayer, who is married with a 2-year-old daughter named Mia. Two days a week a nanny comes to the house to care for Mia; the other three days she goes to daycare. On those days, either Mayer or his wife,

Patricia Seo-Mayer, picks her up, depending on whose workday is more manageable. Seo-Mayer, a pediatric nephrologist, divides her time between clinical duties and research, which involves studying the kidney damage that occurs in low-oxygen settings, such as after serious surgery or an infection. On research days, she can usually pick Mia up, but when she's at the hospital, the job frequently falls to Mayer.

It's not just the frequent need to relieve the sitter or pick up Mia from daycare that makes Mayer grateful for a predictable workday. "One of my favorite parts of the day is when I come



family practice residents who have begun a new residency in our group of 48. She is part of a trend that has been noticed primarily among medical students: in growing numbers, they are choosing “lifestyle” specialties.

“E-ROAD” stands for emergency medicine, radiology, ophthalmology, anesthesiology and dermatology. These are part of a group of medical specialties that offer a “controllable lifestyle” by allowing physicians greater ability to control the amount of time spent on clinical duties. A dermatologist may be able to arrange a weekday 9-to-5 schedule (or something close to it), since there aren’t many nighttime derm emergencies. Emergency medicine is shift work, and though frequent moves between nights and days play havoc with one’s sleep schedule, the field does allow docs to work only as many shifts as they feel they can manage. Compare that with family practice, obstetrics or general surgery, all of which may require the practitioner to come to work unexpectedly and to toil exceptionally long hours to maintain a viable practice.

The trouble with the E-ROAD is that the areas of medicine that most need new physicians are not in the “lifestyle” group. Medical leaders have long recognized a shortage of primary care physicians, or those trained in general internal medicine, family practice and pediatrics. As early as the 1980s, articles were appearing in the medical and surgical literature calling physicians’ attention to this disturbing trend. More recently, in 2006, the American College of Physicians called for “a national health care work force policy ... to reverse the impending collapse of primary care medicine.” At the Yale School of Medicine, the number of graduates choosing E-ROAD specialties rose from 17 in 1997 to 34 this year. During that same time period, the number of graduates specializing in internal medicine, pediatrics and family medicine dropped from 36 to 22.

These numbers mirror a national trend. A 2003 study in *JAMA: The Journal of the American Medical Association* revealed that the percentage of medical students entering primary care declined from 49.2 percent in 1987 to 44.2 percent in 2002. Of that group, many who train in internal medicine do so with the intent to specialize, not to open an office-based general practice. These numbers are bad news. The Council on Graduate Medical Education estimates a deficit of tens of thousands and as many as 197,000 generalists by 2020, out of a total projected number of roughly a million full-time equivalent docs (there were 781,200 full-time equivalent docs

in the United States in 2000). There have been efforts to encourage students to choose primary care careers, with strategies ranging from debt forgiveness to improving academic generalists’ schedules. But the dissatisfaction of primary care doctors is growing, and this is not lost on students. The trend has progressed so far that it is unclear who will be providing basic care for coming generations of children, adults and especially the elderly. Aging baby boomers will require generalists who are well-versed in the long-term care of multiple diseases, but it is beginning to look as if specialists will be managing them by organ system, with no one physician coordinating overall care.

“People are using the word ‘crisis’ to describe what’s happening in primary care medicine,” says Greg A. Sachs, M.D. ’85, chief of geriatrics at the University of Chicago until August, when he became chief of general internal medicine and geriatrics at Indiana University. “We’re very worried about where our trainees are coming from.”

Asghar Rastegar, M.D., professor of medicine (nephrology) and associate chair of the Department of Internal Medicine at Yale, points out that medicine is defined as a profession because it has made a social contract with the public. “If our profession does not honor that contract, the public will rewrite the contract,” he warns.

But laments and lambasting alone will not reverse the trends of the last few decades. Doctors have traditionally been willing to work long hours at the cost of personal and family time, perhaps because there are ethical rewards and societal respect that come with doctoring. The postwar “golden age” of medicine, when health care expenditures grew faster than the number of doctors did and doctors enjoyed a great deal of decision-making autonomy, has faded, for better or worse, in the face of a changing health care system.

Another article in *JAMA* in 2003 was one of several that elucidated the principal factors that make doctors miserable: not only long work hours, but also decreasing autonomy, more time pressure and difficulty in maintaining high-quality care. Today’s pressure to see more patients in less time, the diminished freedom of action that has accompanied managed care and reimbursements for *thinking* that are far less than for *doing* (an internist who decides upon a treatment strategy earns much less for his trouble than the gastroenterologist who scopes the patient, for example) have begun, perhaps, to alter students’ ambitions. What has always been a difficult

job has become increasingly thankless, and students are quietly rebelling.

"About 20 years ago," says Peter N. Herbert, M.D. '67, HS '69, senior vice president and chief of staff at Yale-New Haven Hospital, "I was sitting at the dinner table with my four kids, and I said to them, 'Who would like to go into medicine?' And they answered almost as a chorus, 'Not me!' I asked them why, and they said, 'We don't want to live like you.'"

Sachs muses, "I think that unfortunately things like [students'] debt, what they see happening in terms of career options, reimbursement, NIH funding, et cetera—those are things that are shaping people. How much of it's a generational thing in terms of how much people want out of it, I'm not sure. People want more defined hours. If I was coming out of medical school with \$120,000 in debt, I don't know if I would have made the same choices. ... The amount of debt I had is nothing compared to what people have these days."

Thomas P. Duffy, M.D., professor of medicine (hematology) at Yale, readily acknowledges that heavy debt handicaps today's graduating medical students. Still, he criticizes their financial aspirations. "Some medical students' expectations [are] now to achieve upper-class lives shortly after graduation from medical school. The amounts of money that can be made in dermatology and plastic surgery are a temptation that many people cannot resist," he says. "The need for luxury is more urgent in the current generation than it was in mine."

### A crisis in primary care

Though they may disagree about students' motivations, nobody questions the fact that the primary care shortage is serious. But how do students' preferences for "lifestyle" specialties affect the way they care for patients? Overwork and frequent overnight call are often mentioned as repellent factors in primary care medicine. Growing evidence suggests that residents who are forced to neglect personal needs such as adequate rest may be doing patients a grave disservice. A recent Harvard study, published online in December 2006 in the journal *PLoS Medicine*, found that residents who were more frequently on call reported committing an increased number of medical errors that resulted in harm to a patient. Sleep-deprived workers have been likened to drunk drivers with regard to neurobehavioral abilities—according to research published in *Nature* in 1997, 24 hours of wakefulness causes impairment comparable to a blood alcohol level of 0.10 percent.

Whether impairment by fatigue actually outweighs the benefits of "continuity of care"—being cared for by the same physician hour after hour, thereby avoiding the errors inherent in handoffs to other physicians—has not been formally examined. There is no universal consensus on this topic. "The patients often feel that nobody is conducting the orchestra," says Herbert. "They see a dizzying array of subspecialists to deal with each of their individual problems, but they often feel that nobody is prioritizing the problems. ... Something major has been lost." Rastegar agrees. "Continuity of care," he says, "is probably more important than physicians being 'well-rested.'"

After all, medical students, residents and doctors are used to pushing through fatigue and a lack of enthusiasm. That's what we do. That's how we come out at the top of our high school classes, ace chemistry and physics in college and survive the demands of med school. That's how we drag ourselves away from a half-hour nap in the middle of a 30-hour call to answer a page. We *can* do it. The question is, *should* we? Do mental and physical fatigue make us worse doctors? I'm convinced of it. It has long seemed clear to me that sleep deprivation must be as dangerous to doctors as it is to pilots and truck drivers. But not everyone is so sure that work-hour reforms, such as the 80-hour work week introduced in 2003 by the Accreditation Council of Graduate Medical Education, produce better physicians.

"[When] I was a resident," Sachs recalls, "we were on call every third night. We got one day off every three weeks, always on Sunday. You stayed until your work was done, even post-call. If you had a patient you admitted at 2 a.m. and they crashed 2 p.m. post-call, you admitted them [to the ICU]. I hated that. I thought it was pretty barbaric and inhumane. I think it clearly needed to change. I'm glad that it has. There need to be the sorts of things that allow people to have a life—I certainly didn't have a life when I was a resident."

"But people's expectations have also changed. Despite how 'good' they have it [compared with] what I went through, people still manage to complain bitterly about how hard they're working, how many hours they're working and those sorts of things. I have concerns about how patient-centered and how devoted they are to their patients. [I don't know] whether it's changes in training, changes in attitudes or the indebtedness that's shaping people's choices. It's hard to find people who are turned on by the notion that 'this is my



patient, I'm there for them, I put that first, even if that means a lot of inconveniences for me and my family.' "

### A life in medicine takes its toll

Yale is not particularly noted for turning out primary care doctors, though every year a number of students do choose this path. Three recent classes have produced a total of seven residents bound for family practice, 25 for pediatrics (and six more for medicine/pediatrics) and 19 for internal medicine/primary care. That's about a fifth of the students who graduated between 2004 and 2006. By comparison, the top primary care med schools, like the University of Washington and the University of North Carolina at Chapel Hill, boast an almost 50 percent primary care graduate rate, according to *U.S. News and World Report*. (Yalies are no exception to the tendency to seek out E-ROAD specialties: the Class of 2004 had 12 students bound for dermatology, a specialty which offers only about 300 positions each year to the nation's 15,000-plus medical graduates.)

Kristen Sueoka, M.D. '07, is headed for internal medicine/primary care. She chose her field because she wants to focus on patient education and preventive medicine, as well as the management of chronic disease. "I really liked everything I rotated through, and dabbled with the idea of being a surgeon. But it seemed a little too painful a specialty in terms of the training," she said.

What about being on call?

"I feel like it's something that I was aware of when I signed up for the job in the first place."

Yet Sueoka is interested in the psychological toll that a life in medicine can exact. "I think you're a better doctor if you have a life outside the hospital, if you have outlets for stress, frustration and the emotional issues you encounter at work. One of the best ways to improve medicine, decrease the number of mistakes, decrease the fact that doctors have higher rates of suicide and substance abuse than the general population, is to try to encourage doctors to be well-rounded instead of being married to their career. I think that truly does make for better doctors and better patient care. ... The attempt at selflessness really hurts both doctors and patients more."

### Finding a balance

Aisha Sethi, M.D., HS '06, a University of Chicago dermatologist, went to medical school in Pakistan and chose dermatol-

ogy after seeing the skin manifestations of leishmaniasis, hemorrhagic fever and other illnesses. "Lifestyle was definitely an important factor in my choice—with having the daily opportunity to perform procedures, but not having to stay in the OR for long hours. I absolutely love it. I could not imagine myself doing anything else. It's got the lifestyle I expected."

Her typical day in academic dermatology? "I have clinic all day with one or two residents with me. I get some time off during the week for academic purposes, so I can attend conferences in other departments. I am also the associate residency program director, so I'm working on curriculum development for the residents. On weekends I mostly work on manuscripts I have in progress or go in to the hospital and catch up on biopsy results. When I'm on consults for the month, one to two months a year, then I go in and see consults. With any specialty you can make it as busy or as relaxed as you want. It's always a balance."

A Yale-trained geriatrician is finding her own version of that balance. Caroline N. Harada, M.D. '01, completed a geriatrics fellowship at the University of Chicago, where she is now on the faculty. She says lifestyle did not play a large role in her decision to enter primary care, but she admits that as an academic geriatrician she probably has an easier call schedule and better support than her colleagues in the community.

"There aren't that many geriatricians out in the community, because in private-practice geriatrics it's hard to make a living. Medicare reimburses by the number of patients seen, not by time, and interviews [with elderly patients] can take a long time."

I asked her if she'd noticed a difference in attitudes about medicine between older generations of docs and doctors of her own generation.

"I'm too young to say. Geriatrics is such a young field that there aren't a lot of old geriatricians," she said. "I think because geriatricians approach things from a very interdisciplinary background, we understand that the biopsychosocial model of medicine applies to everyone, all of us. You've got to put a person in their context. Doctors as much as patients have a context. If that's not appreciated and recognized, then you aren't dealing with the full person."

Are patients better served by physicians who feel this way?

"It's good for patients, because I don't think well when I'm tired. I don't think well when I'm preoccupied with something at home, or need to be in two places at once. When I'm here at work, I try to be 100 percent here. As long as you have



home and get to play with her. We love going to the park," he says. When Seo-Mayer works late, he also feeds Mia dinner and makes her lunch for the next day.

Between work and being with Mia, Mayer doesn't have a lot of time for hobbies, but one passion he does indulge is soccer. He's played most of his life, including competing in Division III soccer in college. These days he tries to get to as many pickup games near the Yale Bowl as he can. "It's a great cosmopolitan collection of players from all over the world and walks of life," he says. "I love playing."

When Mayer is treating patients, walking to the park with Mia or suiting up for a soccer game,

he knows ophthalmology was the right career choice for him. "Sure, it's easy to become enamored by the drama and high intensity of some specialties," he says. "It gives you a rush, but I was willing to give up that rush. In the long run, it wasn't that satisfying to me."

He also knows that any field of medicine can become all-consuming, but he's confident that as an ophthalmologist, it will be easier for him to live a balanced life than it would be in many other specialties. "I'm just on the doorstep of my attending career, so I'm anxious to see how it works out, but so far I'm very pleased," he said.

—Jennifer Kaylin

an intelligently designed schedule where there's always somebody on call to address patient concerns and take care of emergencies, patient care doesn't have to be compromised by allowing doctors to have a decent lifestyle and personal time."

### A lifestyle within a lifestyle

My residency in emergency medicine is over, and I'm working at an academic emergency department in a Chicago hospital. Teaching residents in an urban setting is important to me. But there was another *sine qua non* in my job search: I must work part-time. After years of topsy-turvy schedules, of rushing home to choose between eating and exercising in the one hour before bed, of wrenching myself from sleep rather than waking naturally and fully rested, of mentally prodding myself through many hungry, discouraging shifts, I was tired. So tired that tendrils of resentment crept into my thoughts about my career in medicine. Fantasies of leaving the field began to take on unsettlingly realistic detail. Yet I think these were the symptoms of fatigue, not of a mistaken choice. I was anxious to prevent these feelings from flourishing into full-blown burnout. One might say I chose a "lifestyle job" within a lifestyle specialty.

I rather thought that those feelings might arise. That is why I chose Yale Med. The Yale system, which treats medical students like graduate students who can be trusted to organize their own learning, allowed me space to ponder, grow up a little and study medicine that interested me in addition to the requirements. Rather than learning to equate medicine with drudgery, I graduated with my passion intact. Residency, though, saw it wane. I can cultivate it again because I've chosen a specialty that will let me. My patients, I think, deserve to have a rested, enthusiastic and well-read doctor. Anyone who has had a kidney stone, or has watched someone having one, will perhaps grasp not only the brutal indifference of a culture that does to its members what it did to my colleague, but also the folly of a medical system that tends to ignore the basic needs of physicians. There may not be a simple solution to the crisis in primary care, but it seems likely that students will continue to choose specialties that acknowledge them, not only their patients, as human beings. "Physician, heal thyself." We will need, I think, to heal one another. **YM**

Jennifer Blair, M.D. '04, finished her residency in emergency medicine at University of Chicago Hospitals in June 2007. She now works at Mercy Hospital in Chicago.





Thomas Steitz



Becca Levy



Hal Blumenfeld



Lawrence Moss



John Persing



Robert Schultz

## Ribosome scholar receives Gairdner Prize

**THOMAS A. STEITZ, PH.D.**, Sterling Professor of Molecular Biophysics and Biochemistry, professor of chemistry and a Howard Hughes Medical Institute investigator, was among five scientists honored in April with the 2007 Gairdner International Award to recognize their contributions to medical science. The Gairdner Foundation honored Steitz and Harry F. Noller, PH.D., of the University of California, Santa Cruz, for pioneering work that led to the identification of the detailed structure and function of the ribosome, the subcellular structure in which proteins are synthesized. Steitz and Noller identified that RNA-catalyzed reactions are critical, and their work explains how many antibiotics operate and how new ones can be developed.

Steitz uses X-ray crystallography and molecular biology techniques to establish the structures and mechanisms of the proteins and nucleic acids involved in gene expression, replication and recombination. In 2000, Steitz and colleagues published two articles in the journal *Science* in which they unveiled the basic structure of the ribosome. Their work provided the first unequivocal proof that the ribosome is a ribozyme, an RNA enzyme. Steitz and his colleagues used a high-energy X-ray beam to probe fragile crystals of RNA and protein and produce detailed images of the ribosome, where amino acids are linked to form chainlike proteins.

In more recent experiments, Steitz and his team have been studying antibiotic resistance. Their research has shown how the main target of antibiotics in bacterial cells becomes resistant to some medications. The findings are already leading to new experimental antibiotics that are being engineered to circumvent resistance, which is a major worldwide health problem.

Each Gairdner awardee will receive \$30,000 in October in Toronto. The awardees are chosen by two advisory committees made up of leading medical scientists from Canada and around the world.

According to the Gairdner Foundation, 68 of the 283 scientists who have received the award in the past 48 years have gone on to win the Nobel Prize. Last year, the award went to two Yale scientists. **JOAN A. STEITZ, PH.D.**, Sterling Professor of Molecular Biophysics and Biochemistry and a Howard Hughes Medical Institute investigator, was honored for her discovery of snRNPs, complexes of protein and RNA that edit and splice other RNA strands to form messenger RNA, the genetic recipe used by the cell's protein-making machinery. **THOMAS D. POLLARD, M.D.**, chair and Sterling Professor of Molecular, Cellular and Developmental Biology, was recognized along with his colleague Alan Hall, PH.D., of Memorial Sloan-Kettering Cancer Center in New York, for discovering the molecular basis of cellular motility and the mechanism of its regulation. In 2004, **ARTHUR L. HORWICH, M.D.**, HS '78, the Eugene Higgins Professor of Genetics and Pediatrics and a Howard Hughes Medical Institute investigator, was honored for his findings on protein folding and its relevance to neurodegenerative diseases.

## Special advisor leaves dean's office post

**LAWRENCE S. COHEN, M.D.**, HS '65, the Ebenezer K. Hunt Professor of Medicine, has stepped down after 16 years in the dean's office but will continue as a faculty member and practicing cardiologist. As deputy dean from 1991 to 1997, then as special advisor, his responsibilities ranged from overseeing faculty appointments and promotions to raising money for endowed professorships to investigating scientific misconduct and fraud.

Cohen came to Yale in 1958 as an intern, following undergraduate studies at Harvard University and medical school at New York University. Twelve years later, after stints in Baltimore, Boston, Bethesda, Md., and Dallas, he returned to Yale as chief of cardiology.

In 1991 Cohen was appointed deputy dean of the medical school by then-Dean Leon Rosenberg, M.D. He continued in that position under Rosenberg's successor, Gerard N. Burrow, M.D., and as special advisor to former Dean David A. Kessler, M.D., and Dean Robert J. Alpern, M.D.



Lawrence Cohen is congratulated by a colleague during a ceremony honoring him in May.

Two Yale scientists have received Investigator Awards from the Patrick and Catherine Weldon Donaghue Medical Research Foundation for Health-Related Research this year. These awards will fund studies about the way the elderly see themselves, as well as new treatments to help people continue to drive. Each researcher will receive \$600,000 over five years.

**Becca R. Levy, PH.D.**, associate professor of epidemiology (chronic diseases) and psychology, will conduct a randomized controlled trial aimed at increasing behaviors that promote good health in older individuals.

**Hal Blumenfeld, M.D., PH.D.**, associate professor of neurology, neurobiology and neurosurgery, will study patients using driving simulators during epileptic seizures. While patients are "driving," neuroimaging and electrical measurements will help determine the brain regions involved in epileptic seizures and how seizures cause loss of consciousness.

Three appointments to endowed professorships were announced in May. **R. Lawrence Moss, M.D.**, has been named the Robert Pritzker Professor of Pediatric Surgery. **John A. Persing, M.D.**, has been named the Irving and Silik Polayes Professor of Plastic Surgery. **Robert T. Schultz, PH.D.**, was appointed the Harris Associate Professor of Psychology and Child Psychiatry.

Moss specializes in general, thoracic and laparoscopic children's surgery, neonatal surgery and the separation of conjoined twins, as well as extracorporeal membrane oxygenation. He is surgeon in chief at the Yale-New Haven Children's Hospital and



Paul Cleary

Vincent  
DeVita Jr.

Daniel DiMaio



Arthur Horwich

chief of pediatric surgery at the School of Medicine. He also serves as program director of the School of Medicine's Fellowship in Pediatric Surgery. He joined the Yale faculty in 2002 after teaching at the University of New Mexico in Albuquerque and the Stanford University Medical Center.

Persing specializes in craniofacial surgery, with a particular interest in craniostylosis, the premature fusing of cranial sutures, which often results in abnormal brain and skull growth. His clinical and research interests also include the treatment of craniofacial trauma; vascular malformations of the head and neck; cranial base tumors; and disorders of the brachial and lumbar plexuses and peripheral nerves. Persing joined the Yale faculty in 1992 as a professor of plastic surgery and neurosurgery and chief of the Section of Plastic Surgery, and as chief of plastic surgery at Yale-New Haven Hospital.

Schultz focuses his research on the biological bases of autism spectrum disorders. The director of the Yale Developmental Neuroimaging Program, Schultz also studies genetic forms of mental retardation, such as Williams syndrome, and a variety of other childhood psychiatric disorders. Schultz uses structural and functional magnetic resonance imaging (fMRI) and detailed neuropsychological assessments to study brain anatomy and function in these disorders. Using fMRI, he and his colleagues are also mapping brain systems involved in the perception of human faces, facial expressions and inferences of social attribution in patients with autism and Williams

syndrome. Schultz came to the Yale Child Study Center in 1994 on a fellowship. He is currently affiliated with both the Child Study Center and the Department of Diagnostic Radiology.

**Paula A. Armbruster, M.S.W.**, associate clinical professor in the Child Study Center, has been named *Cambridge Who's Who* Professional of the Year in Child and Adolescent Mental Health. Only one member in each discipline is named Professional of the Year. A selection committee selects *Who's Who* honorees based on accomplishments, academic achievement, leadership and service. Armbruster has served on national and local boards, committees and task forces for child mental health, including school-based services, Medicaid managed care and licensing for child outpatient psychiatric services.

**Christopher K. Breuer, M.D.**, assistant professor of surgery (pediatrics) and pediatrics, has received a Doris Duke Charitable Foundation Clinical Scientist Development Award, marking the first time a Yale faculty member has received this award. The foundation provides grants to junior physician-scientists to facilitate their transition to independent clinical research careers.

**Paul D. Cleary, PH.D.**, dean and C-E.A. Winslow Professor of Epidemiology and Public Health in the Department of Epidemiology and Public Health, was elected to the Connecticut Academy for Science and Engineering in May. The academy was established in 1976 by the Connecticut General Assembly

to identify and study technological issues and advances of concern to the citizens of Connecticut. Cleary's recent research includes a study of how organizational characteristics affect the costs and quality of care for persons with AIDS; a national evaluation of a continuous quality improvement initiative in clinics providing care to HIV-infected individuals; the development of Web-based decision tools to improve cancer care decision making; and a study of the long-term impact of patient-centered hospital care.

**Vincent T. DeVita Jr., M.D.**, the Amy and Joseph Perella Professor of Oncology at the Yale Cancer Center (YCC), was presented with a Statesman Award by the American Society of Clinical Oncology at its annual meeting in Chicago. The award pays tribute to members whose work has contributed to the betterment of the society. This year, the award gives special recognition to outstanding past achievement. Director of the YCC from 1993 to July 2003, DeVita currently serves as chair of the YCC Advisory Board. He spent the early part of his career at the National Cancer Institute (NCI). In 1980 he was appointed director of the NCI and the National Cancer Program, a position he held until 1988.

**Daniel C. DiMaio, M.D., PH.D.**, has been named scientific director of the Yale Cancer Center (YCC). DiMaio will have broad oversight of all basic science research within the YCC. He is currently vice chair of the Department of Genetics, the Waldemar Von Zedtwitz Professor of Genetics and professor of therapeutic

radiology. As part of his new responsibilities, he will chair the YCC Scientific Steering Committee, whose mandate is to recommend expenditures of funds for scientific recruitment and programmatic enhancements. He will also oversee the Basic Science Research Program Division.

**Bernard G. Forget, M.D.**, professor of medicine (hematology) and genetics, is one of 10 Yale faculty members named fellows of the American Academy of Arts and Sciences. Forget researches the mechanisms of normal and abnormal gene expression during red blood cell differentiation. Fellows are scholars and practitioners of disciplines ranging from mathematics, physics, biological sciences, social sciences, humanities and the arts to public affairs and business. The newly elected fellows will be inducted at a ceremony in October at the academy's headquarters in Cambridge, Mass.

**Arthur L. Horwich, M.D., HS '78**, the Eugene Higgins Professor of Genetics and Pediatrics and a Howard Hughes Medical Institute investigator, received the Wiley Prize in Biomedical Sciences in April for his contributions to the understanding of how proteins fold. He was honored along with Franz-Ulrich Hartl, M.D., DR.MED., of the Max Planck Institute of Biochemistry in Germany. Over the last 17 years, Horwich and Hartl's labs have helped explain how proteins are transformed from chains of amino acids to three-dimensional structures whose shape determines their function. The prize is given by the Wiley Foundation, which was





Arthur Levy

Charles  
Lockwood

Gil Mor



Gerald Shulman

established in 2001 by John Wiley & Sons, a 200-year-old publisher of scientific, technical and medical books and online services.

**Carol H. Lee, M.D.**, professor of diagnostic radiology and chair of the Breast Imaging Commission of the American College of Radiology, was named the second leading Women's Imaging Specialist in the April 2007 issue of *Medical Imaging* magazine. The second annual *Medical Imaging Industry Top 10* honors professionals whose knowledge is incorporated into practice—improving the lives of people with cutting-edge techniques, industry interaction and problem-solving abilities.

**Arthur L. Levy, M.D.**, associate clinical professor of medicine and nursing, has been appointed medical director for medical oncology. Levy will oversee clinical activities in the medical oncology practice at the Yale Cancer Center (YCC). In addition to his administrative and leadership roles at the YCC, Levy will be actively involved in the training and education of medical students, house staff and fellows. As part of this role, he will continue to care for cancer patients with a wide range of diseases, including lymphoma and other hematologic malignancies as well as solid tumors. Before joining the YCC Levy was a medical oncologist in private practice in New Haven for 30 years. He is the author or co-author of numerous articles, book chapters and reviews, including several on hematologic malignancies.

**Charles J. Lockwood, M.D.**, the Anita O' Keefe Young Professor of Women's Health and chair of obstetrics, gynecology and reproductive sciences, has been named

president of the Society for Gynecologic Investigation (SGI) for the 2007–2008 term. The SGI is the world's leading research organization in reproductive sciences. Lockwood will preside over the society's 2008 annual meeting in San Diego with **Hugh S. Taylor, M.D.**, associate professor of obstetrics, gynecology and reproductive sciences and of molecular, cellular and developmental biology, who will serve as the meeting's program director. Lockwood served as SGI president-elect in 2006–2007 and previously served as SGI secretary-treasurer.

**Bernard Lytton, M.B.B.S.**, the Donald Guthrie Professor Emeritus of Surgery/Urology, was elected president of the American Association of Genitourinary Surgeons in April. The term is for one year.

**Cindy R. Miller, M.D.**, associate professor and co-section chief of pediatric imaging in diagnostic radiology, received the Jack O. Haller Award for Excellence in Teaching from the Society of Pediatric Radiology (SPR) in April. The award is given in memory of Haller, who excelled as an educator, mentor and author. The SPR is dedicated to leadership in advancing pediatric health care through medical imaging and image-related therapy.

**Gil Mor, M.D., PH.D.**, associate professor of obstetrics, gynecology and reproductive sciences, received the J. Christian Herr Award from the American Society for Reproductive Immunology in May. The award is given annually to a person who has made outstanding achievements in basic or applied research in

reproductive immunology, particularly for investigators involved in technology transfer.

**Clarence T. Sasaki, M.D.**, the Charles W. Ohse Professor of Surgery and chief of the Section of Otolaryngology, has been named president of the American Broncho-Esophagological Association (ABEA), after three years as the association's treasurer. The ABEA's multidisciplinary membership supports research related to diseases of the vocal tract, hypopharynx and esophagus.

**Robert S. Sherwin, M.D.**, the C.N.H. Long Professor of Medicine, received the Banting Medal for Scientific Achievement from the American Diabetes Association (ADA) at the organization's 67th Scientific Sessions in Chicago in June. The Banting Medal honors an individual who has made significant long-term contributions to our understanding of diabetes, its treatment and/or prevention.

**Warren D. Shlomchik, M.D.**, associate professor of medicine and immunobiology, received a Clinical Scientist Award in Translational Research from the Burroughs Wellcome Fund in March. The \$750,000 award supports established physician-scientists who are dedicated both to mentoring physician-scientist trainees and to translational research. Shlomchik studies graft versus host disease and graft versus leukemia in allogeneic stem cell transplantation.

**Gerald I. Shulman, M.D., PH.D.**, professor of medicine (endocrinology) and of cellular and molecular physiology and a Howard Hughes Medical

Institute investigator, was one of 72 new members elected to the National Academy of Sciences in May in recognition of their distinguished and continuing achievements in original research. Those elected, including 18 foreign associates, bring the number of active members to 2,025. Shulman is known as an expert on diabetes. His lab group examines insulin resistance in patients with diabetes and in transgenic mouse models. The lab's long-term objectives are to elucidate the cellular mechanisms of insulin resistance and to identify new therapeutic targets to reverse insulin resistance in patients with type 2 diabetes.

**Robert I. White Jr., M.D.**, professor of diagnostic radiology, has been inducted into the Johns Hopkins Society of Scholars for his work in the fields of radiology and cardiology. The society inducts former postdoctoral fellows and junior and visiting faculty at Johns Hopkins who have distinguished themselves in the sciences or humanities.

#### SEND FACULTY NEWS TO

Claire M. Bessinger, *Yale Medicine*,  
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to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu)

# The Class of '07



JOHN CURTIS (2)

**ABOVE** From left, Maria Mazzeo, Arianne Boylan and Lauren Krause marched toward Old Campus for the university's ceremony.

**RIGHT** From left, Kristin Sueoka, Joshua Shofner and banner-bearer Karen Morris-Priester waited for the start of the procession to Old Campus.





Neurosurgeon Ben Carson offered the Commencement address.

Phoebe Koch carried her 1-year-old son, Oak, onto the podium to receive her diploma from Dean Robert Alpern.

## From the inner city to Yale and neurosurgery

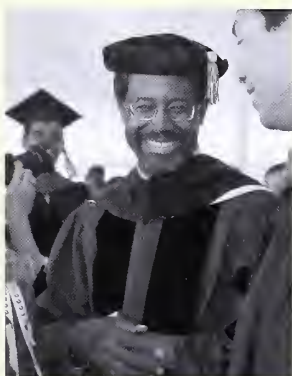
Benjamin Carson, M.D., told graduates that hardship can be a good thing.

An elite neurosurgeon born in crushing poverty, Benjamin Carson, M.D., told the Class of 2007 how learning transformed his life and urged the graduates to use their education to transform society.

Carson, selected by the graduating class of 86 new physicians as their Commencement speaker, is director of the Division of Pediatric Neurosurgery at Johns Hopkins Children's Center and a former fellow of the Yale Corporation. He performed the first successful separation of twins joined at the back of the head and has written several popular books, including his autobiography, *Gifted Hands*. Carson shared some of that life story, beginning with his humble origins and continuing through his education at Yale College and eventual rise to a position of prominence in medicine.

Carson was a badly behaved, low-achieving elementary school student until his mother, who had only a third-grade education, began assigning him twice-weekly book reports. Her strategy worked, and Carson became an excellent student, only to backslide in high school because of peer pressure. "Peers, that's Persons who Engage in Errors, Rudeness and Stupidity," he joked. His mother quickly got him back on track.

Carson credited the struggles of his childhood in inner-city Detroit for his perseverance. "It puts fire in your belly. Hardship is a good thing," he said.



He now has CEOs and royalty come from around the world for consultations. "Every single one of them would have gladly given every title and every penny for a clean bill of health," he said. The physician's power to restore health is cause for humility, not pride, he continued. "It doesn't make us special, but it makes us incredibly privileged."

Carson's success spurred him to create the Carson Scholars Fund with his wife, Candy. The nonprofit organization gives cash awards and development opportunities to outstanding students in grades 4 through 11, with scholarships awarded for attendance at four-year colleges and universities upon the students' graduation from high school.

Society is plagued by problems that "we in the medical profession have some of the tools to solve because we are the most highly educated people in society," Carson said. He urged the class to be active in their own communities and to be a voice on such national issues as the 47 million Americans living without health insurance. "How can we abide that?" he asked.

Several faculty members received teaching prizes at the ceremony. The Bohmfalk Teaching Prize went to Fred

Gorelick, M.D., professor of medicine and cell biology, for basic science teaching, and to Jessica L. Illuzzi, M.D., assistant professor of obstetrics, gynecology and reproductive sciences, for clinical teaching. The Leah M. Lowenstein Award was given to Vincent J. Quagliarello, M.D., professor of medicine, and to Karen Santucci, M.D., associate professor of pediatrics. Hal Blumenfeld, M.D., Ph.D., associate professor of neurology, neurobiology and neurosurgery, received the Francis Gilman Blake Award. Damani Piggott, M.D., Ph.D., '03, HS, received the Betsy Winters House Staff Award. The Leonard Tow Humanism in Medicine Award was given to Majid Sadigh, M.D., associate professor of medicine. Leo M. Cooney Jr., M.D., the Humana Foundation Professor of Geriatric Medicine, received the Alvan R. Feinstein Award for outstanding teaching of clinical skills.

The class gift will be split between the Society of Distinguished Teachers, a program that supports excellence in the school's teaching mission, and beautification of the patio outside Marigold's, the medical school's cafeteria.

—Colleen Shaddox



JOHN CURTIS (3)

**TOP** From left, Rina Dhopeswarkar, Michelle Gubatina, Saki Miwa, Anne Reiner and Cynthia Tsai posed for a photo before Commencement.

**MIDDLE** From left, Sonia Lee, Elizabeth Lutzker, Katherine Johnson and Joshua Rosenzweig in the procession to Commencement at Old Campus.

**BOTTOM** Dean Paul Cleary with Commencement speaker Julie Gerberding, head of the Centers for Disease Control and Prevention.

## Learning, collaboration and engagement are essential, CDC chief tells EPH grads

In an increasingly interconnected world, public health networks are vitally important, Commencement speaker Julie L. Gerberding, M.D., M.P.H., told public health students during Commencement ceremonies in Battell Chapel on May 28.

Gerberding, the director of the Centers for Disease Control and Prevention (CDC), described four qualities that will foster these networks. She said that in order to answer urgent questions, men and women in the field of public health will need the "fast science" that can result from integrated scientific platforms and collaborations. Public health professionals should share ideas across disciplines to create a marketplace of ideas. "We must talk not just to each other," she said, adding that public health practitioners need to engage people at all levels of society. "We're used to doing everything from the top down," said Gerberding. "That isn't going to work anymore." Finally, CDC's core values of respect, integrity and accountability should be incorporated into the work of public health at all levels.

Gerberding told the 119 graduating master's-degree candidates, faculty and guests that she believes that "every life is equally valuable" and that we should continue to learn every day. "You have a privilege," she said. "You have graduated from a university that will open doors for you."

Officiating at his first Yale graduation, Dean Paul D. Cleary, P.H.D., presented the 2007 Award for Excellence

in Teaching to Robert Dubrow, P.H.D., M.D., associate professor of epidemiology and public health. Dubrow said that any celebration of public health in 2007 "must be tempered by the catastrophe of the war in Iraq," which "represents a public health disaster on many levels." Peace, Dubrow said, is an essential condition for human well-being.

Student speaker Lubna Tanveer Shamsi, M.P.H. '07, spoke with gratitude of the public health initiative of a classmate, Anant C. Shah, M.P.H. '07, who petitioned the city for improved pedestrian safety after Shamsi was struck by a car near campus.

Prizes awarded to graduating students included the Dean's Prize for Outstanding M.P.H. Thesis, to Martin Anderson, Anne Reiner and David Thomas; the Henry J. (Sam) Chauncey Jr. Inspiration Award, to Seamus Collins; and the Cortlandt Van Rensselaer Creed Award, to René Herbert.

—Cathy Shufro



## Anxiety penetrates Yale system! Students, faculty stressed! Deputy dean to the rescue!

What happened to the freewheeling, easygoing Yale system? How did stress enter the lives of Yale med students? Was it a curse? An infection?

Thus began *Infected*, the second-year show presented in February by the Class of 2009. Anxiety first surfaced with the transition in the school's office of education. Herbert S. Chase, M.D., the former deputy dean, had left, to be replaced by a seemingly befuddled Richard Belitsky, M.D., played by Mark Schlangel. What did this change portend? "Will we have to study embryology?" the students asked.

The students expressed their worries in a parody of "Circle of Life," the hit song from the Broadway show *The Lion King*:

*From the day we arrived on campus  
Been in lecture, never seeing the sun,  
There's more to read than can ever be read  
More to learn, our work's never done.  
There's far too much to take in here,  
Catch your breath and you'll fall behind.  
So we study in threes,  
Shadow surgeries.  
The only reason we're not losing our minds  
Is the system of Yale.  
It's what keeps us calm  
Through secret codes,  
Lectures forty minutes long.  
It's the only way to avoid competing—  
It's the system, the system of Yale.*

The plot thickened with the emergence of Johns Hopkins lymphoma, also called Johns Hopkins disease, a plague of unknown origin that laid waste to



TERRY DAGRADI (2)

the relaxed and hallowed Yale system of medical education. Students began to worry about exams, class rankings and competition from classmates. The virus spawned a new pickup line—"I hear the virus is sexually transmitted. Wanna find out?" Faculty noticed the change but didn't expect the virus to spread to them. After all, they admitted, there was little contact between students and faculty.

But spread it did, as the cast performed an original song by second-year student Josh Trufant:

*Dr. Bia spends his days watching  
Girls Gone Wild,  
Fortin's teaching Zen in the Art of  
Kitchen Tile,  
Rizzolo's robbing graves, Hep C's  
in Duffy's eye,  
JHD spreads like cream cheese.  
Now the faculty has it too—  
We're screwed! We're screwed!*

**BELOW** Neil Vason, accompanied by a chorus, sings "The System of Yale."

**BOTTOM** Mark Schlangel, right, portraying Deputy Dean for Education Richard Belitsky, with cast member Yasha Modi.



By the end of the show all had worked out for the best. Belitsky, a psychiatrist, realized the problem was all in the students' heads rather than being caused by an infectious agent. Sanity prevailed, the Yale system was safe and calm returned to the medical school.

—John Curtis

## As budding researchers, students reveal a talent for 'mind-boggling' science

From a study of a transgenic mouse with Alzheimer's disease to an analysis of the effects of clinic attendance on weight loss after gastric bypass surgery, a diverse array of projects were on display on Student Research Day in May.

Jack A. Elias, M.D., the Waldemar Von Zedtwitz Professor of Medicine, and chair of internal medicine, called the quality of the science exhibits in the Hope Building "absolutely mind-boggling," while one older guest was overheard saying to a contemporary, "Can you imagine us doing anything this sophisticated when we were students here?"

April Levin, a fourth-year medical student who plans to specialize in pediatric neurology, studied epileptic seizures in WAG/Rij rats, an inbred strain of rat that is genetically susceptible to seizures. Levin wanted to see whether having a seizure somehow teaches the body to have more seizures. Through the use of ethosuximide

(ESX), a treatment for absence seizures, Levin and her team were able to prevent seizures in very young rats. Months later, a brain-wave comparison showed that early treatment with the antiepileptic drug ESX before the onset of seizures resulted in decreased seizure activity months after ESX was discontinued.

Karen Archabald studied whether prenatal discussion of breast feeding by health care providers makes a difference in a new mother's feeding choices. Archabald, a fourth-year medical student planning to specialize in obstetrics and gynecology, found that while 95 percent of the women she interviewed had concerns about breast feeding, only a quarter of those had their concerns addressed by a health care provider. While 75 percent said they were asked about their feeding plans, only 25 percent of those felt they had had a conversation with their health care provider. "There is a lot of room for improvement in terms of discussion," Archabald concluded.

The day's keynote address, the 20th annual Farr Lecture, was delivered by



Medical student Ryan Kaple studied atherosclerotic plaque components.

Elias, who has spent his career studying pulmonary disease. Asthma, he said, is a "silent epidemic" that afflicts up to 20 million people in the United States alone. One slide Elias showed drove the point home, however, even more forcefully than that staggering number. The slide was an autopsy specimen from an 11-year-old girl who died in the grip of an asthma attack while her mother raced her to the hospital.

Elias ended on a note that surely left his audience of budding scientists feeling energized about their career paths: the work conducted in his lab laid the scientific groundwork for Aerovant, a new asthma treatment. Aerovant is now showing promising results in clinical trials.

*Abstracts and complete theses by Yale medical students are accessible online via the Yale Medicine Thesis Digital Library at <http://ymtdl.med.yale.edu/>.*

—Jennifer Kaylin



Five students who made oral presentations posed with John Forrest Jr., director of the Office of Student Research, internal medicine Chair Jack Elias and Dean Robert Alpern. Back row from left: Rajesh Rao, Forrest, Paul Kalanithi and Ranjit Bindra. Front row from left: Brent Schultz, Elias, Alpern and Bernice Ng.



Lu Anne Dinglasan, left, and Alison Maresh celebrated Maresh's match at New York-Presbyterian Hospital.

## Match Day 2007

Nationally, this year's match was the largest in the program's 55-year history, with almost 28,000 medical students vying for just under 22,000 slots. At Yale, for the second time in the past three years, all 84 students in the match found residencies.

### California

**Cedars-Sinai Medical Center, Los Angeles**

Aram Lee, medicine-preliminary

**Contra Costa Regional Medical Center, Martinez**

Rebecca Kershner, family medicine

**Harbor-UCLA Medical Center, Torrance**

Hassana Ibrahim, transitional

**Santa Clara Valley Medical Center, San José**

Anika Nina Watson, transitional

**Stanford University Medical Center**

Aaron Berger, plastic surgery

Paul Kalanithi, neurosurgery

Bernice Ng, dermatology

**UCLA Medical Center, Los Angeles**

Hassana Ibrahim, diagnostic radiology

Aram Lee, diagnostic radiology

Peter Yang, internal medicine

**University of California, San Francisco**

Jason Andrews, internal medicine/primary

Lucy Goddard, internal medicine/primary

Priya Shete, internal medicine

Stephen Shiao, radiation oncology

Ramnath Subbaraman, internal medicine

Kristen Sueoka, internal medicine/primary

**University of Southern California, Los Angeles**

David Jeng, ophthalmology

**Ventura County Medical Center, Ventura**

Emlyn Jones, family medicine

### Colorado

**University of Colorado School of Medicine, Denver**

Arianne Boylan, surgery-preliminary, neurosurgery



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### Connecticut

**Greenwich Hospital**

Silas Wang, medicine-preliminary

**Hospital of Saint Raphael, New Haven**

Phoebe Koch, medicine-preliminary

Peter Lin, transitional

Robert McGlynn, medicine-preliminary

William Worden, medicine-preliminary

**St. Vincent's Medical Center, Bridgeport**

James Schafer, transitional

**Yale-New Haven Hospital**

Omar Chaudhary, ophthalmology

Sean Christensen, medicine-

preliminary, dermatology

Mary Dombrowski, medicine/

primary-preliminary, neurology

Matthew Egalka, pediatrics

Gretchen Graff, medicine/

primary-preliminary, dermatology

Brendan Jackson, internal medicine/primary

David Jeng, medicine/primary-preliminary

Hristos Kaimakliotis, surgery-preliminary, urology

Stefan Mansourian, medicine/primary-preliminary

Anthony Ndu, orthopaedic surgery

Bernice Ng, medicine/primary-preliminary

Sally Romano, psychiatry

Stephen Shiao, medicine-preliminary

Linus Sun, medicine-preliminary

Edward Teng, plastic surgery

Nataliya Uboha, internal medicine

### Georgia

**Medical College of Georgia, Augusta**

Omar Chaudhary, medicine-preliminary

### Illinois

**McGaw Medical Center of**

**Northwestern University, Chicago**

Rajesh Rao, transitional

### Maryland

**Johns Hopkins Hospital, Baltimore**

Peter Lin, anesthesiology

Arnab Mukherjee, anesthesiology

### Massachusetts

**Beth Israel Deaconess Medical**

**Center, Boston**

Bidhan Das, general surgery

Victoria Kuohung, medicine-preliminary

Ahou Meydani, medicine-preliminary

Charlotte Wu, internal medicine

**Boston University**

Chukwuemeka Nwanze, ophthalmology



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**Boston University Medical Center**  
Victoria Kuohung, dermatology

**Brigham and Women's Hospital, Boston**

Bridget Collins, internal medicine  
Rebecca Hunter, medicine-preliminary

Lauren Kendall Krause, emergency medicine

Karen Morris-Priester, anesthesiology  
Oren Rosenberg, internal medicine  
Joshua Shofner, medicine-preliminary  
William Worden, anesthesiology

**Children's Hospital Boston**

Christopher Janson, pediatrics  
April Levin, pediatrics

**Massachusetts Eye and Ear Infirmary, Boston**

Rebecca Hunter, ophthalmology  
Rajesh Rao, ophthalmology

**Massachusetts General Hospital, Boston**

Eric Ackah, internal medicine  
Kristopher Kahle, surgery-preliminary  
Aida Kuri, internal medicine/primary  
Chukwuemeka Nwanze, medicine-preliminary

Oyere Onuma, internal medicine  
Russell Ryan, pathology  
Joshua Shofner, dermatology  
Marlynn Wei, psychiatry

**Michigan**

**University of Michigan Health System, Ann Arbor**  
James Schafer, diagnostic radiology

**Minnesota**

**Mayo Clinic College of Medicine, Rochester**  
Brian Koh, internal medicine/research

**University of Minnesota, Minneapolis**  
Phoebe Koch, dermatology  
Brian Yablon, medicine-pediatrics

**Mississippi**

**University of Mississippi Medical Center, Jackson**  
Anika Nina Watson, diagnostic radiology

**New Jersey**

**UMDNJ-New Jersey Medical School, Newark**  
Ahou Meydani, dermatology

**New York**

**Albert Einstein College/Montefiore Medical Center, Bronx**  
Cameron Page, internal medicine/primary/social

**Beth Israel Medical Center, New York City**

Arnab Mukherjee, medicine-preliminary

**Memorial Sloan-Kettering Cancer Center, New York City**

Ranjit Bindra, transitional, radiation oncology  
Viral Juthani, transitional

**New York Eye and Ear Infirmary, New York City**

Robert McGlynn, ophthalmology

**New York-Presbyterian Hospital-Columbia University Medical Center, New York City**

Sheila Kumar, internal medicine  
Stefan Mansourian, neurology

Alison Maresh, otolaryngology  
Caryn St. Clair, obstetrics and gynecology  
Lara Suh, surgery-preliminary, urology  
Linus Sun, neurology

**New York-Presbyterian Hospital-Weill Cornell Medical Center, New York City**

Jana Colton, psychiatry  
Maria Mazzeo, anesthesiology  
Aditya Sharma, emergency medicine

**New York University School of Medicine, New York City**

Viral Juthani, ophthalmology  
Victoria Potterton, medicine-preliminary  
Alain Ramirez, general surgery  
Silas Wang, ophthalmology

**North Shore University Hospital-NYU School of Medicine, Manhasset**

Masha Diede, emergency medicine

**Ohio**

**Cleveland Clinic Foundation**  
Kikelomo Olorunrinu, anesthesiology

**University of Cincinnati College of Medicine**

Deborah Kaplan, physical medicine and rehabilitation

**Pennsylvania**

**Albert Einstein Medical Center, Philadelphia**

Jessica Kirk, transitional

**Children's Hospital of Philadelphia**

Nana Akua Asafu-Agyei, pediatrics  
Jennifer Kalish, pediatrics

**Hospital of the University of Pennsylvania, Philadelphia**

Farrah Datko, internal medicine  
Roshan Shah, orthopaedic surgery/research

**Lehigh Valley Hospital, Allentown**  
Karen Morris-Priester, transitional

**University of Pittsburgh Medical Center**

Shekar Davarya, obstetrics and gynecology  
Rebecca McNutt, emergency medicine



**Rhode Island**  
**Brown University–Women & Infants**  
**Hospital, Providence**

Karen Archabald, obstetrics and  
 gynecology

**Roger Williams Medical Center,**  
**Providence**

Jessica Kirk, dermatology

**Washington**

**University of Washington Affiliated**  
**Hospitals, Seattle**

Maya Maxym, pediatrics

Brent Schultz, plastic surgery

The following students chose options other than residencies in the United States. Shobi Syed Ahmed is studying Middle Eastern and Islamic studies at Harvard University. Ryan Kelly plans to pursue teaching and research in the biological sciences. Douglas Lyssy is an investment banker at Merrill Lynch Global Healthcare Group. Kyeen Mesesan will work in international health research and policy. Alexander Nissen is in a residency training program in Norway.



**OPPOSITE** From left, Zofia Piotrowska, Lara Suh and Viral Juthani, joined by Juthani's girlfriend, Neha Surana, looked over the 2007 Match list.

**LEFT** Charlotte Wu shared the news of her match to the internal medicine program at Beth Israel Deaconess Medical Center in Boston.

**TOP** Matthew Egalka, who matched to the pediatrics program at Yale-New Haven Hospital, shared the news with classmate Bridget Collins, who matched to internal medicine at Brigham and Women's Hospital in Boston.

**ABOVE** Karen Morris-Priester, left, matched to the anesthesiology program at Brigham and Women's Hospital, and Gretchen Graff matched to dermatology at Yale-New Haven Hospital.

# Reunion 2007

Scores of alumni returned to Yale in June for a weekend of reminiscing and reconnecting.

Reunion 2007 opened on June 1 with the traditional reception and clam-bake—but in a departure from past years, the reception was held in Harkness Courtyard rather than in the Medical/Historical Library.

The reunion, said Dean Robert J. Alpern, M.D., Ensign Professor of Medicine, marked his third anniversary as dean. He assured alumni about the status of the Yale system of medical education. “The Yale system is alive and well—so relax and enjoy the weekend.”

The following morning, after a reunion symposium on brain function, Alpern offered a more detailed view of

the state of the school. Applications to the medical school have increased, he said. With more than 4,000 applicants each year for 100 slots, the admissions committee has been increased from 30 to 74 members. “The quality of the applicants is incredible,” he said. He also mentioned that for the second time in three years, 100 percent of students matched this year.

In addition, 102 new graduate students entered the medical school in 2006. This year a new collaborative project with China will begin, wherein eight Chinese graduate students will come to Yale, with their education

funded by universities and the Chinese government. “It will be really good for China and for Yale,” Alpern said.

Three new research centers have been established at Yale: the PET Center; the stem cell center funded in part by the state of Connecticut; and the Yale Center for Clinical Investigation. Two important initiatives are also under way, Alpern continued. One is to ensure that the clinical practice is run as efficiently as possible: Navigant Consulting, a specialized independent consulting firm, has identified areas in which the practice can be improved. And Yale-New Haven Hospital (YNHH)



The Association of Yale Alumni in Medicine elected new officers in June. From left, Dean Robert Alpern joined Vice President Harold Bornstein Jr., President Jocelyn Malkin, and outgoing President Frank Lobo.



Dean Robert Alpern, left, and outgoing alumni association President Frank Lobo, right, joined Howard Minners and Peter Herbert, who received the Distinguished Alumni Service Award this year.



and the medical school are working on joint service line planning for cardiovascular care, organ transplant, neurosciences, oncology and pediatrics.

The medical school's endowment has grown from \$1 billion to \$1.8 billion over the past three years. In addition, three major facilities are in the works: a cancer hospital is under construction; a new research building on Amistad Street is set to open in October; and still another research building is on the drawing board.

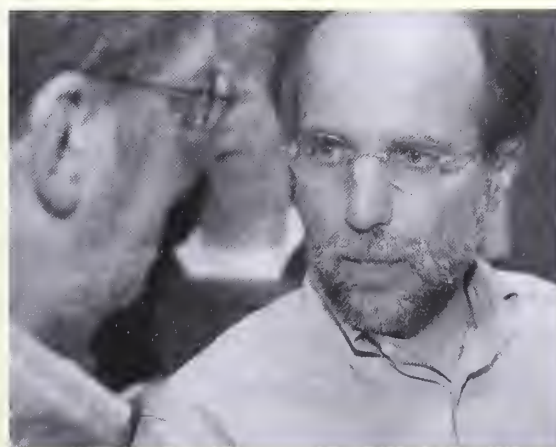
The Association of Yale Alumni in Medicine (AYAM) elected a new slate of officers this year. Jocelyn S. Malkin,

M.D. '52, HS '54, FW '60, became president. Harold D. Bornstein Jr., M.D. '53, HS '56, was elected vice president. Robert W. Lyons, M.D. '64, HS '68, stayed on as secretary, a three-year position. Francis M. Lobo, M.D. '92, completed his two-year term as president.

Howard A. Minners, M.D. '57, and Peter N. Herbert, M.D. '67, received the Distinguished Alumni Service Award. Minners was honored for his service to the medical school, the country and the world. He has worked as a flight surgeon for the National Aeronautics and Space Administration, developed vaccines at the National

Institutes of Health, was assistant surgeon general and served as a science advisor to the United States Agency for International Development.

Herbert, chief of staff at YNHH, was recognized for his achievements in elucidating the mechanisms of lipid metabolism and for his service to three hospitals in the New Haven area—YNHH, the Hospital of St. Raphael and the VA Connecticut Healthcare System in West Haven.



At the scientific symposium on brain function on June 2, Sreeganga Chandra, above, described the role of a protein in Parkinson's disease, and Susumu Tomita, right, described the regulation of synaptic strength.

Cell biologist Pietro De Camilli, right, spoke about neurotransmitters.

### Honoring first African American alumnus

Today, more than 350 African Americans hold degrees from the Yale School of Medicine, but 150 years ago there was only one: Cortlandt Van Rensselaer Creed.

When Creed received his degree in 1857, he was the first African American to be awarded any degree from Yale University and the first to obtain a medical degree from an Ivy League school. The School of Medicine celebrated this landmark event during the June reunion weekend as 50 Creed family members attended commemorative events, including a visit to Creed's grave in the Grove Street Cemetery during which Curtis Patton, Ph.D., professor emeritus of epidemiology and public health, unveiled a new gravestone for Dr. Creed. The centerpiece of the weekend was a presentation on Creed's life by Forrester A. Lee, M.D. '79, assistant dean for multicultural affairs and professor of medicine (cardiology).

It took extensive genealogical detective work on the part of Darryl K. Daniels, M.D. '91, and others to fill in the details of Creed's life and to track down his descendants; no photograph of him has ever been found. Still, much has been learned about Creed and his many accomplishments.

A New Haven native, Creed was the grandson of Prince Duplex, a Revolutionary War soldier. His mother, Vashti Duplex, was New Haven's first African American schoolteacher, and his father, John Creed, was a Yale College janitor and caterer.

Creed served as a surgeon during the Civil War and as medical officer of the Connecticut National Guard. He went on to practice medicine in successful mixed-race practices in New Haven and



JOHN CURTIS (3)



TERRY DAGGADI



**TOP LEFT** Forrester Lee described the life of Cortlandt Van Rensselaer Creed, the first African American to graduate from the School of Medicine.

**TOP RIGHT** Diane Williams and her mother, Gwen Washington, sang at the dedication of a gravestone for their ancestor, Cortlandt Van Rensselaer Creed.

**MIDDLE** Descendants of Cortlandt Van Rensselaer Creed attended the clambake with Forrester Lee and Dean Robert Alpern.

**ABOVE** Creed's descendants gathered at his grave in the Grove Street Cemetery for the unveiling of a new tombstone.



Brooklyn, N.Y., drawing the attention of the press for his surgical and forensic skills. Reportedly, Washington physicians sought his expertise when President James Garfield was assassinated in 1881. At that time there were no X-ray machines or other devices that could detect the precise location of bullets lodged deep within the body, and eminent surgeons outside Washington were consulted in an effort to locate the bullet and remove it to prevent infection and save Garfield's life.

Creed's memory at Yale endures through scholarships and awards. At the School of Public Health (EPH), the Creed/Patton/Steele Scholarship supports outstanding students from underrepresented minorities. Both the School of Medicine and EPH present an annual Creed Award to an underrepresented minority student for academic achievement and commitment to community service.

After Lee's presentation, several Creed family members took turns at the podium in Rosenberg Auditorium in the Jane Ellen Hope Building. An emotional George Creed said, "You have immortalized one of our ancestors. I can think of no greater gift for man on earth." Referring to Creed's descendants, Georgette Creed added, "We're all activists in some form or fashion. We're still carrying the banner."

#### Remembrances of women at Yale

Alumni who returned for reunion weekend in early June surely expected misty-eyed reminiscences over lobster and Chablis with former classmates and professors, but some also had the chance to delve into the past in a more structured way with Naomi Rogers,



PH.D., associate professor of history of medicine and of women's and gender studies.

Rogers, who is compiling an oral history of women graduates of the School of Medicine from the Class of 1920 to the present, met individually with alumnae to record their recollections of life in medical school. She spoke with about a dozen women from the classes of 1944 through 1986.

Most of the older women Rogers interviewed were either pediatricians or psychiatrists, specialties deemed appropriate for women in the early years of women's admission to medical school. Although discrimination wasn't a burning issue for the women Rogers interviewed, sometimes specific incidents surfaced as they spoke. One woman who graduated in the late 1960s remembered an uncomfortable episode during her surgical rotation. After an operation was over, she and the rest of the surgical team started discussing the case. As they talked, they moved together into the dressing room. A man in his underwear was irate that a woman had just entered the "doctors" room and told her to use the room marked "nurses."

"This was a powerful moment for her and not a deeply unusual story," Rogers said.

Lisa Straus was one of a dozen women who recalled their medical school experiences for historian Naomi Rogers during reunion weekend. Straus described the evening she didn't feel like studying and thought, "I don't have to do this. There's no test." A moment later it hit her, "These are people's lives. I have to do this."

Still, the women interviewed by Rogers looked back on their medical years with great fondness. "They were almost all upbeat," she said. "Going to medical school was a marvelous experience. They got what they wanted and made some good friends along the way."

Rogers said she undertook the oral history project to broaden what's known about the history of the medical school and to inspire women to value their own stories. By the end of the weekend, Rogers said, a number of men came up to her and said, "When are you going to interview us?"

Rogers likes that idea.

Former chair of surgery Arthur Baue attended the Surgical Society reunion with his wife, Rosemary, their children and their children's spouses.

### Former surgery chair feted

At its 12th annual spring reunion in May the Yale Surgical Society honored surgeon, professor emeritus and author Arthur Baue, M.D., who spent 10 years at Yale as chair of surgery and surgeon in chief at Yale-New Haven Hospital.

Baue's daily mission, said Walter E. Longo, M.D., M.B.A., professor of surgery (gastroenterology), was to strive for excellence in patient care and student education. Longo credited Baue with laying the groundwork for a methodical approach to surgical education and setting standards for the peer review process in medical journals.

Baue called his decade at Yale "the highlight of my career" and said that what he misses most are his weekly meetings with students. "They didn't take anything for granted," he said. He recalled a student politely but firmly challenging something he'd said in class. "And you know what?" Baue said. "He was correct."

Baue, who was at Yale from 1975 to 1984 before moving to St. Louis University, graduated from Harvard Medical School and completed a residency in surgery at Massachusetts General Hospital. He has authored or coauthored 12 books on medical topics, published 600 professional articles, edited a two-volume text on cardiothoracic surgery and served for 10 years as editor of the American Medical Association's *Archives of Surgery*. His most recent book, *Doctor, Can I Ask You a Question? Your Health Care Questions Answered*, came out in March 2006. Baue continues to write but no longer sees patients. He and his wife, the Reverend Rosemary Dysart Baue, live on Fishers Island, New York.



TERRY DAGRADI

The surgical society reunion also featured a talk on the future of thoracic surgery by Frank C. Detterbeck, M.D., chief and professor of thoracic surgery. Detterbeck described some of the new treatments on the horizon for lung cancer patients. From real-time imaging techniques and robotic surgery to artificial lungs and tailored chemotherapy, he said that tools being developed will enable doctors and patients to manage lung cancer in the not-too-distant future as a chronic disease rather than an often-fatal illness.

The society presented travel awards to third-year student Heather McGee, for \$1,000, and to second-year student Amanda Silverio, for \$500. The awards will help pay for McGee's international travel clerkship in Zambia and for Silverio to attend and deliver a presentation at the American College of Surgeons conference this fall in New Orleans.

### AIDS remains a global health threat

A diagnosis of AIDS used to be a death

sentence, but in the 25 years since the disease was identified, drug therapies have vastly improved the long-term prognosis for many patients. With AIDS no longer dominating headlines or the obituary pages, it's easy to draw the conclusion that it's not a serious health threat anymore.

Nothing could be further from the truth, according to panelists in a workshop held at the School of Public Health's Alumni Day reunion weekend. While a small percentage of patients have access to lifesaving drugs, AIDS remains a devastating illness for much of the planet, speakers said. "The Evolution of a Global Pandemic: The Story of HIV/AIDS and Health Policy Responses from around the World" focused on the ways different countries—Iran, China, Russia, the Caribbean nations and the United States—are handling the epidemic.

Keynote speaker Peter Selwyn, M.D., M.P.H., medical director of Leeway, a





JULIE BROWN (2)



JOHN CURTIS (2)



#### TOP TO BOTTOM

In his keynote address at the School of Public Health's Alumni Day, Peter Selwyn said that the dynamics of transmission in different countries must be understood in order to stop the AIDS epidemic.

Kaakpema Yelapaala, who received the Eric W. Mood New Professionals Award, works on development and health issues at the William J. Clinton Foundation.

Epidemiologist Linda Niccolai described the HIV/AIDS epidemic in Russia.

Idalia Sanchez believes HIV/AIDS remains a serious problem in the United States despite advances in treatment.

New Haven-based nursing facility for AIDS patients, and professor and chair of the Department of Family and Social Medicine, Montefiore Medical Center and Albert Einstein College of Medicine, said that to stop the spread of AIDS, the "transmission dynamics" must be understood. In Iran, for example, intravenous drug use is the major mode of AIDS transmission. In Asia, it is prostitution, and in Russia, it's a combination of both. "You have to look locally at the specific dynamics of how AIDS is spread," said Selwyn, who spent seven years at Yale as associate director of the AIDS program. That information can then be used to customize effective intervention strategies.

Post-communist Russia has become the perfect breeding ground for HIV/AIDS, with the second-fastest-spreading epidemic in the world after Ukraine. One reason for Russia's dubious distinction, said Linda M. Niccolai, PH.D., assistant professor of epidemiology, is that the government won't acknowledge the magnitude of the problem. "It doesn't fit in with their international image," she said. At a time when the government allocated only \$4 million a year for local AIDS prevention and care, it was contributing \$20 million to a global fund to fight AIDS elsewhere. "They have a desire to be seen as *helping* nations in need rather than *being* a nation in need," Niccolai said.

The Caribbean, one of several locations where Kaakpema Yelapaala, M.P.H. '06, has worked for the Clinton HIV/AIDS Initiative, faces a different roadblock: stigma and discrimination. As a result, said Yelapaala, who is now based in the United States, patients often don't get tested or seek treatment. Despite these obstacles, Yelapaala said there has been significant improvement in negotiating price reductions for the antiretroviral drugs used to treat AIDS.

Kaveh Khoshnood, M.P.H. '89, PH.D. '95, assistant professor of epidemiology (microbial diseases), proposed

what he called "health diplomacy"—improving international relations through collaborations centered around disease management. "Health can and should have a prominent role in global discussions," he said.

While the disease remains a growing problem in North Africa and the Middle East, Khoshnood said a major shift in attitude on the part of some government officials in Iran has been positive. Iranian government officials now accept that HIV/AIDS is a serious problem and support such progressive measures as methadone treatment and needle exchange programs.

While China also has some enlightened AIDS policies, including free drugs for AIDS patients in rural areas, the stigma placed on patients and the financial burden of caring for them have thwarted adequate diagnosis and care, said Kenneth E. Legins Jr., M.P.H. '95, chief of the HIV/AIDS Programme at the UNICEF Office for China. "Even when good policies do exist, stigma and discrimination—including parading sex workers through the streets to humiliate them—is a major barrier," he said. Legins is hopeful that young people, with their more enlightened views, will help bring about a much-needed change in attitude in China.

Idalia Ramos Sanchez, M.P.H. '81, associate director of the division of science and policy at the U.S. Department of Health and Human Services, stressed that despite encouraging news about survival rates and treatment options, AIDS remains a serious problem in the United States, too. She advocates making AIDS testing routine and paying more attention to underlying problems that create barriers to care such as housing. "If you don't have adequate housing, what good is a drug that needs refrigeration?" she asked. Public opinion polls have found that Americans now view AIDS as more of a global problem than a domestic one.

"It's not seen as something urgent any more," Sanchez said, "but it is."

### A vision for public health

Over lunch at the Lawn Club, Paul D. Cleary, PH.D., told alumni of his efforts in his first year as dean of public health and described his vision for the future. He has streamlined the administration, he said, by reducing the number of committees. Searches are under way for scientists specializing in genomics, HIV, health management, analytic sciences and ecological epidemiology. And 11,000 square feet of new space have become available at 135 College Street.

Because public health is a small school, Cleary said, it can increase its impact through partnerships and alliances with other graduate and professional schools at Yale, as well as civic and government groups in New Haven. How, he asked, can New Haven have the health problems it does with such a pre-eminent research institution as Yale within its borders? "We have got to do better," he said. "We have got to make New Haven better." Noting a significant

incidence of rickets in the city, he said, "It is not OK that this is happening."

His vision includes a new yardstick for measuring success—improving the lives of people. "We are not just academicians," he said. "We want to train people who will have an impact."

After lunch, alumni were honored for their service to the school and their professional accomplishments. Elaine Anderson, M.P.H. '76, who served in numerous positions in state government and at the school, received the Distinguished Alumni Award. Carolyn Millman, M.P.H. '84, who spent 20 years at the school, most recently in alumni relations, received the Bulldog Award. The Eric W. Mood New Professionals Award went to Kaakpema Yelapaala, M.P.H. '06, who specializes in development and health issues at the William J. Clinton Foundation.

Kaveh Khoshnood, M.P.H. '89, PH.D. '95, assistant professor of epidemiology (microbial diseases), and Edith Pestana, M.P.H. '93, were named to the 2007 Alumni Public Service Honor Roll. Khoshnood was honored for his commitment to human rights, infectious disease prevention and the eradication of social stigma related to HIV/AIDS. Pestana was honored for embodying the underlying principle of the profession—protecting the health of the public.



JOHN CURTIS (4)



**TOP** Carolyn Millman received the Bulldog Award for her 20 years of service to the school.

**MIDDLE** Elaine Anderson received the Distinguished Alumni Award for her work in public health.

**BOTTOM** Edith Pestana was named to the Alumni Public Service Honor Roll for her commitment to public health.

**LEFT** Kaveh Khoshnood received the Alumni Public Service Honor Roll award from Susan Addiss.





## 1947

### 60th Reunion

On December 23, 1943, the incoming Class of 1947 assembled at the Sterling Hall of Medicine. Sixteen members of that class gathered this year for a 60th reunion. On Friday, June 1, the Captain's Room at Mory's was dominated by our octogenarian contingent for a social session and dinner. We were pleasantly surprised by an unexpected visit of a dozen former Whiffenpoofs from the Yale College Class of 1977 celebrating their own reunion at Mory's.

On Saturday, June 2, we gathered at the Graduate Club at 6 p.m. for a social hour and dinner. Classmates in attendance were: **Henry** and **Lorraine Blansfield**, **Roy** and **Margaret Breg**, **John Cannon**, **Bob** and **Ann Chase**, **Amoz** and **Renate Chernoff**, **Bill Collins** and daughter **Ruth**, **Bob** and **Susan Darrow**, **Bob** and **Claire Kerin**, **Brock Lynch**, **Bill** and **Betty Jean McClelland**, **Bob** and **Martha Newton**, **Bill Rudman** and guest, **Olive Pitkin Tamm**, **Bill** and **Claire Thompson**, **Ellis** and **Ann Van Slyck**, and **Sumner** and **Marie Ziegra**.

Three classmates had made plans and reservations to attend that were derailed. Two of them, **Betty Price** and **Dick Carlin**, are mentioned together since their medical school romance united them in marriage. **Phil** and **Josephine Philbin** were also unable to attend.

Letters from four classmates all recalled fond memories of medical school days, and each sent best wishes. **Roland Chambers** sent his greetings from Australia, where he has settled. Others sending remembrances were **Owen Doyle**, **Edgar Phillips** and **Henry Williams**.

It was apparent that it does not take long to reach 80 on either the speedometer or the calendar.

**Robert J. Kerin** and  
**Robert F. Newton**

## 1952

### 55th Reunion

Although regrettably fewer of us made it back to this our 55th reunion, those of us who came enjoyed our usual camaraderie. Of our 35 known survivors, a significant number live far away. Those who attended were **John Wolff**, who traveled from Florida, **Frank** and **Barbara Coughlin**, who live in Connecticut, **Jack Roberts**, who came in from Philadelphia, **Bob Gerety** and **Margie**, who traveled from Vermont, and **Bob Owen** and **Edie** from St. Louis. Also, the Class of '52 officially welcomed to our ranks **Jocelyn Malkin**, who had graduated with members of our class. She is also the incoming president of the Association of Yale Alumni in Medicine.

Several of us got to see each other and renew old friendships on Friday morning while registering in the entrance rotunda of the Sterling Hall of Medicine. That place for our first meeting seemed fitting, for, like the Medical Historical Library, its steadfast unchanging character is reassuring in the otherwise necessarily rapidly evolving environment of modern medicine.

Of course, there was a time for further fellowship at Dean Robert Alpern's welcome cocktail reception and during the legendary New England-style clambake that followed. **Jack Roberts**, having also been a Yale undergrad, sang along with reverence and flawless memory when the Dixieland band struck up some old Yale songs.

The reunion symposium on Saturday presenting current research in neurotransmitter release and regulation of synaptic strength was very enlightening. The sherry buffet luncheon was another fine opportunity for fellowship among us, as well as for making new friends among alumni from other classes.

Our class dinner was held at the Graduate Club. **Jack** distributed copies of photographs from our senior class play; it had been a real spoof, and the pic-

tures evoked many memories. Since we were a small group, there was opportunity for a lot of circulating conversation among us, rich with reminiscences. We covered many subjects, ranging from the sublime (the marvels of modern-day medicine) to the ridiculous (the lyrics of the Whiffenpoof Song). It was an enjoyable evening to be long remembered. It was also a reminder, along with the passing years, for us all to keep in touch.

**Bob Owen**

## 1957

### 50th Reunion

The Class of 1957 held its 50th reunion with a record number of classmates returning—about 60 percent of the living members of the class. We all had a wonderful time meeting and talking with one another.

At the Annual Meeting on Saturday morning we were happy to see one of our members, **Howard Minners**, receive the Distinguished Alumni Service Award, a well-deserved tribute to his work with the alumni fund and our class over the years.

Later that afternoon, after the class picture on the steps of the entrance to the Medical School simulating the one taken 50 years ago, we convened in the Beaumont Room for our class meeting. **Gil Hogan** told of his work as the alumni representative to the education, policy and curriculum committee and his experiences teaching the clinical skills course. **Harry Briggs** told of his many years of teaching anatomy. **Calvin Bigler** delighted us by recounting his years of practicing in a rural setting as a "compleat surgeon."

Later on Saturday we reconvened at the home of **Bill** and **Priscilla Kissick** in Branford for our class dinner, which was a great success. Dean Alpern and his wife came and broke bread with us, making it even more special.

Earlier in the evening a champagne toast was given by the assembled class for our survival and for our return to a

wonderful school with many memories. As usual, we were happy to be with one another.

**Gil Hogan**

## 1962

### 45th Reunion

The 2007 reunion weekend celebration—the 45th anniversary of our graduation from Yale Medical School—was a classic mix of all we might have asked for. The Friday night outdoor reception on the lawn at Harkness Medical Dorm was casual, comfortable and complete with, among other things, delicious grilled fresh lobster and oysters on the half shell. Inside seating at Harkness was elected by most but a few chose the tents, which proved to be secure as well as dry; in fact, pleasant.

**Bruce Elfenbein** and wife **Christine**, and **Joe Ferrone** and wife **Pat** were able to make only this one-day portion of the weekend because of commitments elsewhere, but enjoyed the evening every bit as much as the rest of us. This group consisted of **Fred Cantor**, **Charlie Carl** and wife **Diane**, **John** and **Trudy Harrington**, **Walt Karney**, **Manny** and **Marcia Lipson**, **Bill** and **Ann Miller**, and **Dick** and **Peggy Pschirrer**. Many of us also had the pleasure of spending time over the weekend with **Stew** and **Emily Wright**, who were here for his 50th Yale College reunion.

Saturday activities included lectures on forefront scientific medical research at the Medical School as well as the Dean's address regarding his appraisal of the medical school in 2007. To the point, it was very upbeat ... highest number of applicants per year, excellent yield (acceptances) and a rapidly growing medical school endowment (distinct from the general Yale University endowment). He remarked specifically that the Yale system is still intact, working to the continued satisfaction of all, with only minor tweaks in the last 45 years.

A pleasant highlight for many of us Saturday night was

the class dinner held at the New Haven Lawn Club in the private dining room on the first floor. This was attended by **Fred** and **Anita Anderson**, **Dick** and **Lucie Collins**, **Arnie** and **Nancy Eisenfeld**, **John German**, and **Alan** and **Rhona Lieberman** in addition to those already mentioned.

The food and wine were quite good, the service of the staff was efficient, pleasant and congenial ... but the after-dinner standing and voluntary comments by virtually everyone present, men and women, will be remembered above all. Friendly and intimate warmth, but especially the sincerity and candor of all, were remarkable in the discussion of careers and lives to date. As the evening concluded, there was a sense of pleasurable togetherness, which I feel will be long remembered.

**Dick Pschirrer**

## 1967

### 40th Reunion

From William Faulkner's Nobel acceptance speech: "... when the last ding-dong of doom has clanged and faded from the last worthless rock hanging tideless in the last red and dying evening, that even then there will still be one more sound: that of [*man's*] puny inexhaustible voice, still talking." For [*man's*] put [ '67's] and you have the situation as it is whenever we meet. I always feel I should say a little something momentous to open our proceedings, but by the time I say "Welcome," no one is listening—everyone is completely immersed in their own conversations. It is marvelous and like no other thing in my life.

Those in attendance at the 40th reunion for the Class of 1967 included **Daniel** and **Elissa Arons**, **Mary Williams Clark**, **Cynthia Rapp Curry**, **James** and **Dolly Dineen**, **Alexander** and **Trina Dora**, **James Dowaliby**, **John Drews** with **Janet Eyster**, **Richard** and **Lilian Hart**, **Richard** and **Carol Heppner**, **Peter** and **Maureen Herbert**, **Robert** and **Gale Kirkwood**, **Melvyn Korobkin**, **Anthony** and **Kathleen**

**Lovell**, **Stephen** and **Christina Miller**, **John** and **Marilyn Pastore**, **Brian Rigney** with **Jessica Coviello**, **Sidney** and **Lucy Smith**, **Helen Smits** with **Roger LeCompte**, **Richard** and **Caroline Swett**, **Robert S.K. Young**, **Ihor** and **Areta Zachary**, and **Peter** and **Ellen Zeman**.

The feeling of solidarity among those of us who attend our reunions is indeed remarkable. Conversation does not begin; it simply continues where it paused five years ago. I wondered for a long time if all YSM classes had this quality. Now I think not—I really believe it is special. One bit of evidence to support this: **Alex Dora** reported that on Friday night at the clam-bake, '67 was still clustered together talking when everyone else had gone home.

Dinner Saturday night at Mory's was well-attended. The only flaw was that we were in two rooms, so if you wanted everyone to hear what you were saying, you either had to stand in the doorway or say it twice. **Steve Miller** stood in the doorway to report that our reunion gift to the school is significant. **Peter Herbert** was not in the doorway when he spoke for himself (and for the rest of us, too) of his admiration and affection for the group, so he must have said it twice. **Peter**, it should be noted, was honored by the school with the Distinguished Alumni Service Award—an award well-deserved, earned by hard work and devoted service.

I had to say goodnight and leave the party early this year. As I waved and walked out, I looked back. Guess what. No one noticed my exit—they were already completely immersed in their own conversations. Marvelous!

**James M. Dowaliby II**

## 1972

### 35th Reunion

Our 35th reunion, attended by 13 classmates and 10 spouses, was truly memorable. As was the case for our 20th, **Jerry** and **Roz Meyer** hosted a fabulous dinner at their

magnificent waterfront estate in Guilford. The "official" dinner on Saturday was held at the Quinnipiac Club.

Attending were **Phil Rothfield**, who is "easing back" on his radiology practice and summering on Bantam Lake. **Lenny Cohen** continues his part-time GI practice and also spends time as a financial consultant. He was in good form as an avid lap swimmer. He was accompanied by wife **Linda**. **Felix Freshwater** brought his laptop with pictures of the second-year class show! **Bob Glassman's** new hobby is photographic restoration. He and **Louise** have four sons, one of whom is a theoretical physicist. **Bruce Haak** has retired as chief of neurology at the Hospital of St. Raphael in New Haven. He and **Valerie** summer in Connecticut and winter in Walnut Creek, Calif. **Fred Henretig**, attending with **Marnie**, continues in pediatrics but also participated in relief efforts during the aftermath of the Indonesian tsunami and Hurricane Katrina in New Orleans. **Phil Liebowitz**, attending with **Susan**, is director of clinical research in anesthesiology at Montefiore Hospital in New York and has recently aspired to golf and piano. **Jerry Meyer**, having retired from psychiatry, is a seasoned artist and has a solo show opening in Chelsea this year. **Gary Strauss**, attending with **Meda**, runs the oncology fellowship at Tufts. **Phil Cohen**, attending with **Annie Hall**, will soon be serenading **Anne** with his new Steinway piano. **Bob Goodman** practices orthopedics in Durango, Colo. **Frank Kahr**, attending with **Katherine**, is a competitive rower and singly sculled from Albany to the George Washington Bridge. **John Fulkerson** attended the Saturday lunch.

Cell phone calls were placed to **Tom Converse** following his touching regrets letter, and to **Harry Malech**, who had a keynote speaking address in Seattle.

Plans were initiated for major recruitment of attendance at our upcoming 40th.

**Bruce Haak**

## 1977

### 30th Reunion

New Haven weather on Friday, June 1, and Saturday, June 2, cooperated nicely, enabling a smaller but energetic group of members of the Class of 1977 to gather, exchange news and take in the changes and growth on Cedar Street, the rest of the Yale campus and downtown New Haven in general. We owe special thanks to **Bob Hand**, who has set up a website and repository for class news, biographies and photos, and to **Ricky Schneider**, who ably communicated receipt of new information in almost real time during the weeks and months leading to our reunion. All classmates and friends are welcome to visit our site, [yale.medlung.com](http://yale.medlung.com); click on the fox, enter user ID *harkness* and password *esophagoose*.

In addition to golf, tours, lectures and similar events, **Alan Penziner** recounted a serendipitous venture on Saturday with other classmates into the Historical Library, where one of the librarians took him and his group into a little-known side office housing artifacts and books from the personal collection of **Harvey Cushing**. The visitors were so impressed that the Alumni Office was contacted and will try to arrange tours of this collection on subsequent reunion weekends.

Our class dinner took place Saturday night at Sage (formerly the Chart House), right on the water at the end of Howard Avenue overlooking Long Island Sound and the entrance to the New Haven harbor. During that afternoon's library tour, some classmates were able to recover copies of our class's original (fall 1973) individual photos, which they brought to and circulated at the dinner, reminding us of classmates we hadn't heard from in a while; of how little those of us at the reunion had really changed; and perhaps most importantly, of how fleeting was the period from 1973 to 2007.



Attending for all or part of the weekend were: **Marcia Clark Arem**, **Wayne Barber** and Sharon Nelson-Barker, **Diane Barnes**, **Harriet Comite** and Alan Geltman, **Alissa** and **Jim Fox**, **Julia Frank**, **Attilio Granata** and Claudia Dinan, **Bob Hand** and Marianne Lynch, **Bob Mitchell**, **Alan Penziner** and Paula Cohen, **Rachel Ritvo** and Steven Beckman, **Steve Scheinman**, Wendy and **Ricky Schneider**, **Gail Sullivan**, **Polly Thomas** and Rick Bell, and **Sharon Weinstein**.

**Attilio V. Granata**

## 1982

### 25th Reunion

Twenty-six of us gathered to celebrate our 25th anniversary of graduation from medical school and catch up with life journeys in and outside medicine.

**Jim Reinprecht** arrived carrying multiple copies of our mug shots from the first week of medical school. The general agreement was that we all look better now than we did then! Jim practices internal medicine in Abington, Penn. Several people came thousands of miles to share the weekend. **Fred Drennan** and **Terry Massagli** got the award for having come the farthest, from Seattle, where **Fred** is practicing gastroenterology after a foray into health care administration, and **Terry** is on the faculty of the University of Washington in pediatric rehabilitation medicine. **Augusta Simpson Roth** and her husband, Bruce, flew in from Arizona. **Gus** started out in ob/gyn, but **Bob Rohrbaugh**, who directs medical studies for the department of psychiatry at Yale, convinced her to switch specialties, and she is now enjoying her practice in psychiatry. **David Goldstein** and his 6-year-old son came from New Mexico, where he practices anesthesiology. **Gary Garshfield** sent a bio for us to read from California, where he is a pathologist. **Bert Ungricht** came from Salt Lake City, where he is in private practice in ophthalmology. **Bert** brought news of

**Don Stromquist**, who is also in Salt Lake City practicing rheumatology.

**Patty Kellner** was in New Haven celebrating her 30th Yale College reunion and joined us Friday night. She is working in family practice in Cleveland, Ohio. **Paula Braverman** is also in Ohio, having moved to Cincinnati several years ago to become director of community programs in the division of adolescent medicine at Cincinnati Children's Hospital. **Michael Katz** (newly married in April) arrived from Boca Raton, Fla., where he is practicing pediatric radiology. **Michael** brought news of two other classmates in Florida: **Henry Stern** is also a radiologist in Wallington and **Peter Namnum** is a pulmonologist in Broward County. **Vangy Franklin** came from Louisiana, where she is chief of clinical services and employee health for the City of New Orleans. **Vangy** survived the ravages of Hurricane Katrina and is intent on staying in the city to help improve health care delivery.

On the eastern side of the country, **Pat Toth** is practicing radiology at Hackensack Hospital in New Jersey. Pat tells us that **Steve Resnick** is a dermatologist in Cooperstown, N.Y., and that **Ron Voit** is in Hilo, Hawaii, practicing ob/gyn. **Michael Carty** drove down from Boston, where he is practicing internal medicine at Harvard Student Health Services. **Duncan Wright** entertained us at the Saturday night dinner with a memorable skit about a lighthouse—you had to be there—appropriate to his location in Maine, where he practices psychiatry. **Bill Sikov** is living in Providence, R.I., teaching at Brown, practicing adult oncology and doing clinical research in breast cancer. **Bill** brought news of **Joyce O'Shaughnessy**, who is living in Dallas and working for US Oncology, focusing primarily on breast cancer clinical trials. **Jeff Tepler** is also a hematologist-oncologist at New York-Presbyterian/Weill Cornell. **Jeff** sees **Jose Guillem**, who is a colorectal surgeon at Memorial

Sloan-Kettering. **Steve Gore** is also a hematologist-oncologist on the faculty of Johns Hopkins, specializing in adult leukemia. **Steve** had news of **Risa Chait Jampel**, practicing dermatology in Baltimore, and **John Younger**, who is a geriatrics specialist in Seattle. **Philip Sager** is back on the East Coast. **Phil** moved back from California to become director of cardiovascular research at AstraZeneca. **Kamau Kokayi** is practicing holistic medicine, including acupuncture, homeopathy, applied kinesiology and herbalism, in his clinic in New York City. **Stephanie Wolf Rosenblum** arrived from New Hampshire, where she is chief medical officer at Southern New Hampshire Medical Center in Nashua. **Jessica Herzstein** came from Philadelphia. **Jessica** trained in occupational medicine and is presently medical director of Air Products and Chemicals, a global company based in Allentown, Penn. **Jessica** tells us that **Troy Brennan** is now medical director of Aetna and is living in Boston. **Jessica** also sees **Sylvia Beck**, who is practicing ophthalmology in Philadelphia. **Katalin Roth** sent a hello to the class from Washington, D.C., where she is the division director of geriatrics and palliative medicine at George Washington University. **Jane Cross** is practicing pediatrics in Holyoke, Mass. **Jane** tells us that **Kate Albert** and **Hugh Hemmings** are working in Manhattan, where they live with their daughter. **Daphne Hsu** is also in New York City, where she is on the Columbia faculty in pediatric cardiology. **Daphne** recently heard from **Mary van der Velde**, who is also a pediatric cardiologist at the University of Michigan. **Daphne** also brought a hello from **Muriel Cyrus**, who is practicing emergency medicine in Vermont.

Then there are those of us who somehow never left New Haven. Several members of our class are actually teaching the newest generations of Yale medical students. **Stuart Gardner** has a solo community pediatric





practice in the New Haven area. **Bob Rohrbaugh** is associate chief of psychiatry at the VA Connecticut Healthcare System in West Haven as well as being the above-mentioned director of psychiatric training at Yale. **Carrie Redlich** is professor of medicine in occupational medicine at Yale and still playing soccer. **Lynn Tanoue** is medical director of thoracic oncology and interim section chief in the division of pulmonary and critical care medicine at Yale. Those of us on the Yale faculty think that the Class of 1982 might be interested in knowing that the Class of 2009 skipped just as we did when we were rehearsing the second-year show! **Lynn** and **Daphne** finally heard from **Colin Lee**, who practices interventional cardiology between hiking, kayaking and mountain climbing in Idaho. **Lynn** also got a call recently from **David August**, who is practicing internal medicine at Harvard Community Health in Boston, and hears that **Paul Sylvan** is alive and well, practicing radiology and playing golf in San Diego.

We took a moment as a group to reflect on the passing of three of our classmates—**David Sears**, **Tom Brennan**, and most recently **Saul Sadka**. We also want to send our heartfelt sympathies to **Victor Perez**, practicing psychiatry in Guam, who lost his daughter to osteosarcoma last year. These losses remind us that life is short and should be lived to its fullest, and that we should celebrate family and friends often and joyfully. The reunion was a wonderful time to be together again even for a few hours, to remember, to share life stories and to laugh.

Lynn Tanoue

## 1987

### 20th Reunion

The Class of '87's reunion was a chance to travel back to New Haven from Orlando, Fla., to see old friends, many of whom are now in new places. **Joe King** and

**Amy Justice** have returned to the Yale community and both are working at the VA Connecticut Healthcare System in West Haven. **Ken** and **Debby Newhouse** traveled from Idaho with their three kids for the reunion and to tour New England colleges. **Bob Malison** and **Gene Vining** remain happily in New Haven, and stopped by the clambake. Saw **Diane Louie** at the clambake, too. **Mike Solon** took the walking tour of the campus. **Matt Miller** surprised us by coming to the class dinner at the Graduate Club Saturday night. Matt finished his PH.D. in public health, and is doing research at Harvard. **Lisa Cairns** has been working at the CDC in Atlanta but is preparing to leave for a several-year stint in Beijing. Dinner at the Graduate Club turned up more classmates, including **Leslie Vogel**, **Kristen Mertz**, **David Ives** and **Ian Chandler**. **Ian** is working on Wall Street rather than in the world of medicine. Caught up with **Lisa Straus**, who reports that she is a "country doctor" practicing primary care in a rural setting ... and loving it! Although a lot of the class had trouble making it to the 20th reunion, we're gearing up for a strong showing at the Big 25th Reunion in 2012!

Barry Weinstock

## 1992

### 15th Reunion

Hello, Med School Class of 1992! For those of you unable to attend our 15th reunion, here's the latest on the attendees:

**Mike** and **Nancy Girardi** have five (yes, FIVE) boys. Anyone not carrying a hot beeper or with four or fewer kids who missed the reunion really has no valid excuse. Five boys—yet both Mike and Nancy look even younger than in medical school 15 years ago. Hey, **Mikey**, share some Yale dermatology secrets with one of your crinkling and wrinkling classmates (an anonymous urologist, married with three kids, living and working just outside Boston).

Virtually without exception, those in attendance at our reunion seemed healthy and enthusiastic as ever, despite the best efforts of our health care system. **Claudia Reynders** (radiologist), who is at the core of a large and excellent radiology group on Boston's North Shore, was accompanied by husband Chat and their son and twin daughters. **Annie Egan** (pediatrics) was in town with her husband, who also attended his undergraduate reunion, and with their two sets of twins. **Annie**, who lives an otherwise salubrious life in Jacksonville, Fla., was sporting a temporary crutch earned after an incident with an equine friend.

Unfortunately, orthopaedists **Tobenna** "let-me-tell-u-some-thin'" **Okezie**, **Evan Fischer** and **Chai Kulsakdinun** don't do legs. (Well, at least not at reunions). **Tobenna** and **Evan**, who both practice solo in New Jersey, were accompanied by their wives. I didn't get much news from **Tobenna**, who chased his son and daughter over Harkness lawn for most of the evening. **Chai**, who is on the faculty at Montefiore, and **Lawrence Gardner** (hematology), who moved from Hopkins to NYU, never run into each other in New York City, to my surprise. I guess it's not so amazing when you consider they work in different departments. Also, **Lawrence** mentioned something about spending a fair amount of time at Bellevue, especially in the prison unit.

**Nate Schmiechen** (emergency medicine), having made a long expedition from the Twin Cities, organized a pre-reunion tea (OK, beer party) in Newton, Mass. Unable to make the trip to New Haven but present Thursday evening were **Fred Welt** (cardiology) and **Dan Solomon** (rheumatology), both mending lives via the Brigham and Women's Hospital. **Nate's** wife, Malinda, has finished law school and now advocates for human rights. Their twin girls are now 12 years old! I drove to the reunion with **Nate**, who remains a master of wit and insight.

On short notice, **Tom Davenport** (plastic surgery) drove from Long Island, where he is vice president and soon-to-be president of a large group. When not enjoying the NYC social life, he devotes a good amount of personal time in the Third World as a volunteer surgeon with Interplast. **Ross Zbar** (plastic surgery) also volunteers for Interplast but now lives in New Jersey. Go **Tom** and **Ross**! **Suresh Karne** (GI) and wife and kids also attended Saturday evening's dinner at the Graduate Club, making the trip from Alabama.

**Robin Goldenson** (aka BooBoo) and **Elizabeth Mullen** (aka Betsy) arrived together to the class dinner, a blatant denial of the dangers of hitchhiking. I would expect more responsible behavior from two prominent Boston physicians, each of them a mother of three. **Robin**, a radiologist at Brigham and Women's Hospital, has two XXs and one XY; and **Elizabeth**, a pediatric oncologist at Children's Hospital Boston (CHB), has three XXs. **Mustafa Sahin** (pediatric neurology), also at CHB, has an active research lab where he studies tuberous sclerosis in addition to his clinical responsibilities. He split his reunion time with his wife's undergraduate reunion somewhere down York Street. They have kids and live outside Boston.

We ran into **Nancy Harthun** (vascular surgery) and her family, who were attending the undergrad reunion. She's living happily in Charlottesville, Va., and is a faculty member at UVA.

Hope everyone's well. Make plans for the 20th!

Mat Massicotte

## 1997

### 10th Reunion

The Class of 1997 had a great showing for its tenth reunion, including what appeared to be about 59 children between the ages of 0 and 6. Lobsters and oysters delighted the folks at the clam bake, including **Julie MacRae**, up from her plastic sur-



gery practice in Delaware, and **Jaimie** (completing what he assures us is his final fellowship) and **Amy** (one of several happy pediatricians in attendance) **Nathan** from Cincinnati. **Max** and **Rachel (Rapaport) Kelz** brought their brood, including future alligator wrestler Zeke, from Philly, where **Max** now gets paid to put people to sleep and **Rachel** works and teaches in the OR. **Dan** and Lesley **Wolf** also came from Philadelphia with adorable children. **Brigitte Kerpsack**, fresh off an NYC pediatrics accolade, came from New York, as did **Tony** and Juliet **Aizer** with munchkin in tow, **Nina** and Lou **Fisher**, and even busy neurosurgeon **Nirit Weiss**. **Jason Gold** attended with wife Ann, while former world-class fencer **James Boren** continues to show mastery of all objects pointy as he regaled classmates with tales of new urologic techniques. **Jim** and Eileen **O'Holleran** brought one of three children from Massachusetts, while Dan (MED '98) and **Barb McGee Coughlin** brought their two from Rhode Island. **Matt Klein** and **Bob** and Andrea **Kalus** from Seattle and **Jerry O'Regan** from Boston could only marvel at their fertile colleagues. **Jon Grauer**, **Eric Fan**, **Kristina Crothers** and **Mark Skirgaudas** entertained us with stories of their exploits in and around the New Haven area. **Sarah Nikiforow** was able to break away from Yale-New Haven Hospital toward the end of the dinner to show off pics of her own beautiful tyke. The group finished Saturday night at Richter's, struggling to come up with unused synonyms for the word "kid."

## 2002

### 5th Reunion

The Class of 2002 five-year reunion was a smashing success! The award for the longest distance traveled goes to **Kinari Webb**, who came all the way from West Kalimantan, Indonesia, where she is working on a health and environmental conservation initiative for Health in Harmony

(www.healthinharmony.org). The shortest-distance awards go to **Anna Gibb Hallemeier**, **Anita Karne** and **Alison Norris**, who came from none other than New Haven. **Anna** and her husband, Pete, have a daughter, Nola, who is nearly 3 years old; and a son, Nicholas, who was born in September 2006. **Anna** works as a med/peds attending at Waterbury Hospital. **Anita** is an assistant professor of medicine at our own Yale-New Haven Hospital. She attended the reunion with husband Mehul Dalal. **Alison** is preparing to graduate from YSM with the Class of 2008. After a 10-year stint as a Yale medical student, she will leave New Haven with an M.D., a PH.D., and three children—Maggie, Franklin and Solomon (not to mention her always-entertaining husband, Dodie McDow).

**Scott Berkowitz** and wife Lesley Farby traveled from Baltimore, where **Scott** is preparing to start his cardiology fellowship at Johns Hopkins. Despite being post-call from the MICU, **Scott** managed to partake of all the festivities. Also from Baltimore, **John Koo** is about to complete his ophthalmology residency at Johns Hopkins. He plans to spend the coming year as a consultant before beginning an oculoplastics fellowship at Johns Hopkins.

**Premila Bhat** and husband Kiran Mandrekar made the trip from Manhattan. **Prem** is a nephrology fellow at Columbia. **George Lui** and wife Vanessa rounded out the New York contingent. **George** is a cardiology fellow at Columbia and plans a career in adult congenital heart disease.

**Deb Smith** came to New Haven from Michigan with husband Daniel Buday. **Deb** is a primary care physician in private practice. The couple has a 5-year-old daughter, Emma, who had better things to do than have dinner with a bunch of doctors.

The Boston contingent included **Karen Thomas** and Mike Rothenberg, who were accom-

panied by their adorable 4-week-old daughter, Jane. **Karen** is completing a cardiology fellowship at Beth Israel-Deaconess, and she plans a second fellowship in cardiac electrophysiology. **Eileen Scully**, who was allowed to leave the hospital for a few short hours to attend the reunion, is about to complete a medical internship at Brigham and Women's Hospital. She plans a career in infectious diseases. **Margaret Bourdeaux** is finishing her med/peds residency and will start a fellowship in global women's health at Harvard. She and husband David Charbonneau have two beautiful daughters, Stella, born in November 2005, and Aurora, born in May 2007. **Tracey Cho** and his wife, Josalyn, were also in attendance. **Tracey** is neurology chief resident at Massachusetts General and Brigham and Women's hospitals. He plans to complete a fellowship in neuro-infectious diseases at Massachusetts General. **Andrew Norden** and wife Pamela attended as well. **Andrew** is about to start a job as an attending neuro-oncologist at Dana-Farber Cancer Institute and Brigham and Women's Hospital.

Reunion social co-chair **Jackie Park** was unable to attend because she is studying oral rehydration solutions for children in India with infectious diarrhea. She has requested to have 75 freeze-dried clams mailed straight from the clambake to her home in Vellore, India.

We look forward to seeing you at our 10-year reunion!

**Andrew Norden**



## A PA alumna serves those who served

Amanda Turner Magee helps wounded veterans of Iraq and Afghanistan in their recovery.

How many alumni of the Physician Associate Program receive visits at work from U.S. senators, the secretary of defense and President George W. Bush?

For Amanda Turner Magee, PA-C, M.M.Sc. '03, it's a frequent occurrence at Walter Reed Army Medical Center, where she is a physician assistant for

inpatient amputee and blast injury care in the Physical Medicine/Rehabilitation Department. She's part of a team that cares for injured soldiers returning from Iraq and Afghanistan. This team includes physiatrists, surgeons, physician assistants, physical and occupational therapists, nurses, prosthetists, social workers and psychologists.

"The workings of military medicine and the logistics that go into treating combat-injured soldiers are new things I'm learning," said Magee, who previously worked in an emergency room in Pennsylvania and was a physical therapy tech before coming to Yale. As a large teaching facility, however, Reed resembles the "big academic hospitals I rotated through at Yale." But in her current job, "... we are often in the public eye."

Politicians, military leaders and celebrities often visit the soldiers at Walter Reed. "The president comes every few months, sometimes completely unannounced," Magee discovered. "One particular visit was announced because he was presenting Purple Hearts, some to patients I had treated. I was selected to attend the ceremony and the informal gathering where he spoke individually with the recipients and other patients. A few weeks later, the White House sent me a photo of the president, my patient, the patient's wife and myself. It was a lovely surprise."

Her department averages 15 to 25 inpatients, flown by MedEvac twice a week from a hospital in Germany to



SCOTT SUCHMAN

Amanda Turner Magee works with wounded veterans at Walter Reed Army Medical Center.



nearby Andrews Air Force Base. Most patients have been involved in some type of blast. "An amputee patient not requiring ICU support is usually admitted to our service about a week from his or her injury date. They have multiple medical issues, including infections, orthopedic injuries and often severe pain syndromes," said Magee. "We provide general medical care, including treating infections and blood clots, pre- and post-operative care, pain management and wound care. ... We initiate their rehab process, including educating the patient and family, and oversee their progress in therapy to establish their long-term rehab plans." Patients' co-morbidities often include vision loss; brain or spinal cord injury; fractures; severe nerve or vascular injury; and post-traumatic stress disorder.

"Most of our patients adjust remarkably well. They have great support here in PT, OT and prosthetics, surrounded by soldiers who are the same age with similar injuries," Magee said. "When they're well enough to leave their rooms and become more involved in rehab, they improve psychologically, feeling they're part of a group again, and seeing progress."

On their first extended breaks at home, patients suddenly face the reality of civilian life as an amputee. "We try to anticipate [the physical and often emotional difficulties they will face after discharge], and help send patients home with a plan—such as a job or college enrollment—so ideally, after months of rehab, they know what they'll be doing if they're getting out of the military," said Magee.

Initially, a series of articles in the *Washington Post* in February that out-

lined neglect and deficiencies in treatment of outpatients at Walter Reed didn't affect Magee's team. "I truly feel that patients get very good care here. We have a comprehensive amputee rehab program which focuses on returning patients to their highest possible level of functioning. Some go on to complete marathons, skydive and return to active duty service," Magee said. Since the media attention to difficulties at Walter Reed and the resignations of key officials, however, a recent hospital-wide emphasis on administrative issues keeps her busier than ever. "We're following new policies when they become outpatients. We're doing a better job of tracking them after discharge and making sure that patients [continue to] get mental health support, too."

Mary L. Warner, M.M.Sc., PA, assistant dean and program director of the Physician Associate Program at Yale, remembered Turner standing out during clinical training. "She demonstrated excellent relationships with patients and staff, which has likely been crucial in her work at Walter Reed. I am sure the patients benefit from the breadth of her knowledge base and true enthusiasm for providing outstanding health care."

Her experiences have created deep bonds between Magee and her patients. Magee senses that she's "becoming committed to veterans' health care. I'd like to stay in it—it is a privilege to be involved in people's lives at a time like this, to be able to help them. The patients are wonderful and it's very rewarding."

—Carol Milano

## **An American doctor finds home on opposite sides of the Pacific Ocean**

Alice Shepard Cary, M.D. '45, HS '47, recalls sitting on a tatami mat made of woven straw, her legs tucked neatly beneath her, in the home of a patient in Kyoto, Japan, in the early 1950s. As the light softly filtered in through the translucent washi-paper walls, she steadied her hand as she prepared to insert a needle attached to a pneumothorax machine between the ribs of the young woman lying on a futon. Careful not to puncture the girl's lung, Cary injected air between the lung and chest wall until she felt confident that she had collapsed the cavity in the young woman's lung, praying that she was saving the girl from a fatal case of tuberculosis.

Cary treated several patients with tuberculosis during 48 years as a medical missionary in Kyoto. Before streptomycin reached this corner of the world in the mid-1950s, the common treatment for tuberculous cavities was to collapse the infected lung in order to "rest" it so lesions could heal, or to remove it surgically—often using only local anesthetic. Like her parents and grandparents before her, Cary's lifelong passion has been to heal the sick and care for others in accord with her Protestant faith.

Born in June 1920, Cary spent her first 14 years in Turkey, where her father, Lorrin A. Shepard, M.D., a surgeon and 1914 Yale College graduate, was director of the American Hospital in Istanbul. Cary came to the United States in 1934 to attend high school

in Massachusetts and went on to pre-med studies at Wellesley College.

During this time, Cupid's arrow struck. The object of her affection was Otis Cary, her brother's handsome roommate at Deerfield Academy. Born in Kyoto, Otis was also the child and grandchild of missionaries. When World War II began, Otis left Amherst College to join the Navy and was assigned to a POW camp at Pearl Harbor, where, because of his fluency in Japanese and his affable nature, he became the executive officer of interrogation. Alice and Otis were married in December 1944.

Alice, meanwhile, was one of three women among 56 men in the Yale School of Medicine's Class of 1945. Her memories of the time are nothing but fond. She is quick to point out that she experienced no discrimination

because of her gender from either the professors or her male classmates. "The few professors who used sarcasm as a teaching tool were just as sarcastic to the men as to the women," she says.

After the war Otis returned to Amherst, then began graduate studies in history at Yale. Alice, meanwhile, was an intern and assistant resident at New Haven Hospital. In 1947 the couple settled in Japan, where Otis had been sent by Amherst College to teach American studies at Doshisha University in Kyoto. Alice began working in the student health center. The two lived in Amherst House, a small on-campus dormitory where they bridged Western and Eastern cultures for the next four decades.

The early years in Japan were difficult, as Alice struggled with the language and tried to turn dehydrated potatoes, eggs and Spam into appetizing meals. In 1957 she joined the Kyoto Baptist Hospital, where she saw outpatients, roughly half of them Japanese and half foreigners. Despite being a Western doctor in Asia, she had little difficulty caring for patients and says she never received negative reactions from her Japanese patients.

"During the early years there were many requests for medications not yet available in Japan," she said. "I could, and did, order them from the United States, but had only limited funds, so had to disappoint most patients." She also worked part time treating outpatients in the Louis Pasteur Institute and raised four children, three of whom have Japanese spouses.

Alice retired from the hospital in 1993 and returned to the United States in 1996 with Otis, who was beginning to suffer from Alzheimer's disease. Otis

died from pneumonia in April 2006. Alice, who lives in Oakland, Calif., returns to Japan at least once a year to visit two of her children still living there. She has served on the board of the East Bay Chapter of the United Nations Association of America, an organization that strives to support the principles of the U.N. by educating and mobilizing Americans. "I want to back the U.N. because, like me, it tries to have its eyes on the whole world, and I would like the United States to know more about and be more concerned with the welfare of the rest of our planet." She also manages to visit with her Yale roommate, Louise Burr Albullet, once or twice a year.

Alice says that her lifelong goal has been to "love the world and everyone in it—even difficult patients and relatives. I've not been totally successful." But then again, she says, "A worthy goal is always just beyond one's reach."

—Kara A. Nyberg



Alice Shepard Cary was one of three women in the medical school's Class of 1945. After a residency at Yale she and her husband moved to Japan, where she spent 48 years as a physician.

### Familiar Faces

**Do you have a colleague who is making a difference in medicine or public health or has followed an unusual path since leaving Yale? We'd like to hear about alumni of the School of Medicine, School of Public Health, Physician Associate Program and the medical school's doctoral, fellowship and residency programs. Drop us a line at [ymm@yale.edu](mailto:ymm@yale.edu) or write to Faces, Yale Medicine, 300 George Street, Suite 773, New Haven, CT 06511.**





Maxine Singer



Lee Goldman



Bonnie Kerker

## 1940s

**Irving G. Rudman**, M.D. '47, received the Silver Cross Sehring Medal of Excellence for Healthcare in December from the Silver Cross Foundation in Joliet, Ill. Rudman, a surgeon, retired in 1996 after 42 years working at Silver Cross Hospital in Joliet. As vice president for medical affairs at the hospital, Rudman was instrumental in forming the largest paramedic system in the state.

## 1950s

**Maxine F. Singer**, PH.D. '57, president emeritus of the Carnegie Institution of Washington, D.C., received the Public Welfare Medal in April, the most prestigious award bestowed by the National Academy of Sciences. The medal is presented annually to honor extraordinary use of science for the public good. Singer will receive the award for providing inspired and effective leadership in science and its relationship to education and public policy. Singer is a pioneer in molecular biology and leader in science policy who has dealt with many of today's key issues. She has advanced the cause of women and minorities in science, fostering equal access to education and career opportunities, and has worked tirelessly to improve science education.

## 1960s

**Norman C. Fost**, M.D. '64, M.P.H., professor of pediatrics and bioethics at the University of Wisconsin School of Medicine and Public Health, has received two awards honoring his achievements in biomedical ethics and human research protection. Fost

accepted the Patricia Price Browne Prize in Biomedical Ethics in February 2007. The prize, now in its founding year, is supported by the Children's Medical Research Institute and administered through the University of Oklahoma College of Medicine. In late 2006 Fost received the Award for Excellence in Human Research Protection, created by the Health Improvement Institute, a nonprofit charitable organization. This lifetime achievement award recognizes excellence in promoting the well-being of people who participate in research.

## 1970s

**David Adler**, M.D. '73, professor of psychiatry and medicine at Tufts University School of Medicine (TUSM); senior psychiatrist at Tufts-New England Medical Center (T-NEMC); senior scientist at the Health Institute, Institute for Clinical Research and Health Policy Studies; and Director of Mental Health Services Research at T-NEMC, was awarded TUSM's Distinguished Faculty Award for 2006. The award recognizes faculty who have made outstanding contributions to the medical school in teaching, scholarship and service to TUSM academic life, patients and associates.

**Lee Goldman**, M.D. '73, M.P.H. '73, executive vice president of Columbia University and dean of Columbia University's College of Physicians and Surgeons, was awarded the 2007 John Phillips Memorial Award by the American College of Physicians in April. The award is bestowed for outstanding work in clinical medicine. Goldman was also honored by the American Heart

Association (AHA). The AHA Quality of Care and Outcomes Outstanding Achievement Award was presented at the AHA's Scientific Forum on Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke in Washington, D.C., on May 9.

## 1990s

**Bonnie D. Kerker**, M.P.H. '95, PH.D. '01, was married in New York in March to Peter J. Ephross. Kerker is the assistant commissioner of epidemiology services at the New York City Department of Health and Mental Hygiene. Ephross also works for the Health Department, writing in-house reports, journal articles and testimonies given at State Assembly and City Council committee meetings on mental health topics.

## 2000s

**Heather M. Babington**, P.A. '05, and Jeffrey A. Tomchik were married on October 27 in Bethel, Conn. Heather Tomchik is a physician associate in Waterbury Hospital's Department of Orthopaedics. Her husband served in the U.S. Marine Corps for six years and is now a firefighter in Danbury, Conn.

**Brad Helfand**, M.P.H. '03, received the American College of Healthcare Executives (ACHE) Early Careerist Healthcare Executive of the Year award for metropolitan Chicago in November 2006. ACHE is an international professional society of more than 30,000 health care executives who lead hospitals, health care systems and other health care organizations.

**Badri Rengarajan**, M.D. '99, and Avanti Ambekar, M.D., were

married on October 8, 2006, in Chicago. Groomsmen included **Ron Yap**, M.D. '00. Badri and Avanti were introduced by **Matthew Falk**, M.D. '00, and his wife, Gloria Lee. Badri and Avanti live in San Francisco, where Badri is a biotechnology equity research analyst at Lehman Brothers and Avanti is a fellow in musculoskeletal and neuroradiology at the University of California, San Francisco.

**Eric M. Poolman**, M.D. '05, M.B.A. '05, FW '07, and **Emlyn S. Jones**, M.P.H., M.D. '07, were married in April at Harkness Memorial State Park in Waterford, Conn. The two met at Yale, where Poolman was a postdoctoral fellow in infectious disease. Jones is a resident in family medicine at Ventura County Medical Center in California.

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**Oscar W. Avant Jr., M.P.H.** '59, died on March 17 in Sumter, S.C. He was 75. Avant was an administrator at Barnwell County Hospital in South Carolina and chief of licensure and certification for North Carolina's department of human resources. He was also the executive director of a company that owned and operated four nursing homes, president of a health care and retirement center and owner of many nursing homes.

**Arthur W. Boddie Jr., M.D.** '67, died on October 22, 2006, in Chicago of complications related to frontal-temporal lobe dementia. He was 64. Boddie was retired as vice chair of the surgical oncology department at the University of Illinois at Chicago (UIC). He was recruited to UIC from the University of Texas Medical School as an associate professor of surgery in 1990 and was named vice chair of surgical oncology in 1997.

**Richard Alan Cazen, M.D.** '74, a gastroenterologist and HIV specialist in San Francisco, died of a brain tumor on April 26 in his hometown of Pittsburgh, Penn. He was 58. Cazen started his practice in 1981 as the AIDS epidemic was emerging and became a pioneer and activist in the treatment and protocol of the new disease. As a gastroenterologist, he maintained one of the few subspecialty practices in San Francisco, concentrating on not only the disease itself, but the gastrointestinal symptoms from AIDS and adverse effects from HIV-related drug interactions and toxicities.

**Hunter Hall Comly, M.D.** '43, died on February 16 in Denver of pan-

creatic cancer. He was 87. Comly, a psychiatrist and educator, spent his career treating children in Iowa, Michigan and California. As a researcher, he determined the cause of "blue baby syndrome," which he linked to nitrate contamination in water drawn from shallow wells. *JAMA: The Journal of the American Medical Association* cited this research in 1983 as one of the journal's 50 landmark articles. During his career he taught child psychiatry and pediatrics at the University of Iowa, was director of the Children's Center in Wayne County, Mich., and was in private practice in Iowa.

**Thomas P. Cotter, M.D.** '45, died on March 19 in Riverside, Calif., after a long illness. He was 85. Cotter served in the Army Air Corps in Riverside. He co-founded the Riverside Radiology Medical Group and was on the medical staff of Riverside Community Hospital. He practiced radiology until his retirement in 1991.

**Philip G. Deane, M.D.** '52, died on March 15 in Shaw Island, Wash. He was 83. Deane served in the 10th Mountain Division of the U.S. Army in World War II. After medical school he served his residency at Harborview Hospital in Seattle, then opened a pediatric practice on Mercer Island. In 1985 Deane and his wife, Lola, a nurse, took early retirement to work in medical service and teaching in American Samoa, Zimbabwe and Pakistan. Upon their return to the United States they worked with the Tulalip Tribes in the Puget Sound area.

**Claude W. Delia, M.D.** '50, died on April 12 in Myrtle Beach, S.C. He

was 82. Delia served as a medical officer in the U.S. Army and in 1952 went to the Walter Reed General Hospital for a residency in pathology. He then spent two years as a military pathologist in Japan, Korea, Taiwan and the Philippines. In 1958 he became professional assistant to the scientific director of the American Registry of Pathology in Washington, D.C. In 1960 he joined the staff of Conway Hospital in South Carolina, becoming director of the laboratory. He resigned in 1995 to devote his time to surgical pathology.

**Stephen J. Fricker, Ph.D., M.D.** '62, died on May 21 in Massachusetts. He was 80. Born in England, Fricker came to the United States to study at the Massachusetts Institute of Technology (MIT), where he received a doctorate in electrical engineering in 1953. He worked at the Lincoln Laboratory, a research and development center managed by MIT, before attending medical school. Fricker did his residency in ophthalmology at Massachusetts Ear and Eye Infirmary and continued to work there until February of this year.

**Dorothy Y. Hall, M.P.H.** '49, died on April 15 in Montpelier, Vt. She was 89. Hall was a public health educator in the areas of tuberculosis and diabetes and was active in Democratic political campaigns.

**Howard B. Hamilton, M.D.** '44, died on April 27 of a heart infection at his home in Falls Church, Va. He was 88. After his graduation, Hamilton served in the U.S. Navy, where he was assigned to the Atomic Bomb Casualty Commission in Hiroshima. He

went on to an internship at Massachusetts General Hospital and research at the Long Island School of Medicine and the New York College of Surgeons. While in Japan he became a student of the ancient theatrical art of Noh, which features dramatic masks and carefully defined movements.

**Thomas S. Harvey, M.D.** '41, of Titusville, N.J., died on April 5 in Princeton of complications from a stroke. He was 94. During World War II Harvey did medical research with the U.S. Army's Chemical Research Center in Edgewood, Md. After the war he became an instructor in pathology and neuroanatomy at the Hospital of the University of Pennsylvania and in 1950 became assistant director of the hospital's Laboratory of Clinical Pathology. In 1952 he became director of the pathology laboratory at Princeton Hospital, where in 1955 he performed the autopsy on Albert Einstein. During the 1960s and early 1970s he was the pathologist for New Jersey State psychiatric hospitals and at the Veterans Hospital in Lyons. In the 1970s he moved to Kansas, where he was director of a commercial medical laboratory. He eventually entered general medical practice in Kansas and Missouri.

**John V. Haxo, M.D.** '51, died on March 19 in Warren, Conn. He was 82. In 1956 Haxo opened a private practice as a general surgeon in New Milford, Conn. He also served as chief of surgery at New Milford Hospital and was active on hospital boards until he retired in 1987.

**Charles L. Hopper, M.D.** '56, died on April 25 in Portsmouth, R.I. He



was 76. Hopper was a medical officer in the U.S. Navy, attending divers at the Underwater Ordnance Station in Newport, R.I. After a surgical residency at Hartford Hospital in Connecticut, Hopper returned to Rhode Island and began a practice as a general and thoracic surgeon. From 1967 until 1983 he was chief of surgery at Newport Hospital.

**Thomas R. Johnson, M.D.** '68, HS '75, died on February 19 at his home in Billings, Mont. He was 64. Johnson, an orthopaedist, became a fellow of the American Academy of Orthopaedic Surgeons in 1981 and served on the group's publications and patient education committees.

**Beatrice Hruska Kaasch, R.N., M.P.H.** '48, died on February 25 in Omaha, Neb. She was 94. Born in Lewistown, Mont., Kaasch attended a one-room country school before going to boarding school. She worked as a private-duty and staff nurse at St. Joseph's Hospital in Lewistown, taught at nursing schools in Montana and was a health educator for the Montana Tuberculosis Association and the Montana State Health Department. A longtime member of the Montana Nurses Association, she served as its president from 1944 to 1947.

**James A. Kleeman, M.D.** '46, HS '53, died on March 30 in Woodbridge, Conn. He was 85. Born in Springfield, Ohio, Kleeman attended the Taft School in Waterbury, Yale College and the School of Medicine. After serving in the U.S. Army in Hawaii, he returned to Connecticut to complete his residency in psychiatry and psychoanalysis. He wrote many papers on early

child development and was a master fly fisherman.

**Melvin Lewis, M.D.**, professor emeritus and senior research scientist in the Child Study Center, died on April 28 in New Haven. He was 79. Born and educated in London, Lewis was nationally and internationally known as a scholar and editor. During his 12-year term as editor of the *Journal of the American Academy of Child and Adolescent Psychiatry*, from 1975 to 1987, he transformed it into the flagship American journal at a time of rapid discoveries and developments in the field. Lewis was also the founding consulting editor of the *Child and Adolescent Psychiatric Clinics of North America*, which he led for 14 years. His scholarly achievements included the first three editions of the now-classic *Comprehensive Textbook of Child and Adolescent Psychiatry*, as well as numerous scientific articles. Originally trained as a pediatrician, Lewis directed the Consultation-Liaison Service in pediatrics at Yale for many years.

**Roslyn L. MacNish, M.P.H.** '41, died on February 21 in Hartford, Conn. She was 88. MacNish had worked as a research statistician for the State Department of Health in Connecticut. She was a member of the Charter Oak Photography Society, the Massachusetts Camera Naturalist and vice president of the New England Camera Club Council.

**John J. McGillicuddy, M.D.** '38, died on January 14 in Massachusetts. A veteran of World War II, McGillicuddy was an orthopaedic surgeon at Sancta Maria Hospital in Cambridge, Mass.,

where he was also head of orthopaedic surgery. He was an orthopaedic surgeon for Boston College and for the Boston Red Sox.

**Stewart J. Petrie, M.D.**, HS '55, died of cancer at the Connecticut Hospice in Branford on March 17. He was 83. Petrie served in the Army Air Corps during World War II. He received his medical degree from Temple Medical School. In 1955 he entered private ob/gyn practice in the Naugatuck Valley. For many years he was chief of staff and chief of ob/gyn at Griffin Hospital in Derby, Conn. He was a fellow of the American College of Gynecology and the American College of Surgeons. He published three books about medicine during the Civil War.

**Ernest L. Sarason, M.D.** '39, died on November 28, 2006, in Syracuse, N.Y. He was 92. After a residency at Mount Sinai Hospital in New York and three years in the U.S. Army, Sarason returned to his home town of Syracuse in 1947. He was known as an outstanding surgeon and as a fundraiser and philanthropist whose efforts supported the Syracuse Symphony, the Syracuse Jewish Federation, the United Way and local hospitals.

**William J. Wedemeyer, M.D.** '46, died of cancer on November 25, 2006, in Walnut Creek, Calif. He was 84. Wedemeyer served as chief pathologist for the Atomic Bomb Casualty Commission in Japan, where he met his wife, Midori. In 1960 he accepted a position at Herrick Memorial Hospital in Berkeley, where he stayed for 25 years. In 1985 he left to work at the VA hospital in Martinez, Calif. He retired in 1994.

**Paul W. Weld, M.D.** '48, died on January 16 in Mendon, N.Y. He was 82. Weld was a diplomate of the American Board of Internal Medicine. He was a physician at Rochester General Hospital for 33 years and served as director of medical education, chief of physical medicine and director of the division of diagnostic ultrasound. He retired in 1991. He was an avid birdwatcher and passionate climber in the Adirondack Mountains.

**Asa J. Wilbourn, M.D.**, HS '71, died on February 6 in Cairo, Ill. He was 68. Wilbourn had been a staff neurologist at the Cleveland Clinic Foundation since 1973 and for more than 33 years directed the electromyography laboratory. He received his medical degree from the Northwestern University School of Medicine in 1964, and after an internship in Dallas joined the U.S. Air Force. As a flight surgeon during the Vietnam War he received two Distinguished Flying Cross awards and the Airman's Medal. At the Cleveland Clinic he became an internationally recognized expert in electromyography and neuromuscular diseases.

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## A surprise for medical school's first grandmother

Karen Morris-Priester, M.D. '07, who received her medical degree on May 28, hopes she'll be remembered for more than being the first grandmother to graduate from the School of Medicine.

"It's kind of surprised me that that's what people think about, because there's a whole lot more that I've accomplished," said the 44-year-old mother of five and grandmother of four, "but I'm not complaining, because it's one reason I've been able to impact a lot of younger people."

Her story of deferred dreams, resolve and sacrifice [See "Long Road to Cedar Street," *Yale Medicine*, Winter 2003] inspired her classmates and professors, who asked her to carry the school's banner at Commencement. It also caught the eye of Oprah Winfrey, who invited Morris-Priester to be part of a "Cheers for You" episode of her television show on May 9.

The week before, Morris-Priester's teachers had lured her to a classroom for "an important graduation meeting." Instead, Oprah appeared on a video screen to tell Morris-Priester and her assembled classmates about the honor. "Oprah was saying my name!" said the shocked Morris-Priester as her fellow students cheered. "You don't expect Oprah to be talking about you!"

Following graduation, Morris-Priester began an internship at Lehigh Valley Hospital in Allentown, Pa., to be followed by an anesthesiology residency at Brigham and Women's Hospital in Boston.

While at Yale, Morris-Priester served on two national committees aimed at increasing diversity in medicine and dentistry and coordinated the Yale chapter of the Summer Medical and Dental Education Program, which helps disadvantaged students prepare for application to medical and dental school.

During her appearance on *Oprah*, Morris-Priester learned that AMB1 Skincare, a Johnson & Johnson company, will pay her medical school debt. Johnson & Johnson is also establishing a scholarship in her honor to increase the number of minority women in the sciences. Morris-Priester's role in that effort will surely involve public appearances.

Already a popular speaker at events geared to young people, Morris is most pleased when older members of the audience approach her. "They tell me they've put off something they've always wanted to do, but after hearing me, now they're going to give it a try."

—Jennifer Kaylin



## Bone Engineering

—*Alumni Bulletin*  
January 1957

"An unusual research project involving an orthopaedic surgeon and an engineer from the Yale faculty was the subject of a recent nation-wide television program originating from the Yale-New Haven Medical Center. Dr. Charles O. Bechtol, associate professor of orthopaedic surgery, heads the research work on bone engineering. His colleague is Henry Lepper, Jr., associate professor of civil engineering. Biomechanics of bone and muscle are being studied in an attempt to correlate the structure and biologic characteristics of bone with structural characteristics of metal. Such information is basic to considerations regarding the design and use of various metals in bone splints and internal fixation of fractures. Another aspect of the project deals with the microscopic structure of bone and is under the direction of Dr. Harold M. Frost, Jr., assistant professor of orthopaedic surgery. His particular interest is the changes in bone structure seen in the process of aging.

"The manner in which this research contributes to a better understanding of the treatment of fractures was shown on 'Medical Horizons' sponsored by CIBA Pharmaceutical Products, Inc., over the ABC-TV network in December."



## A Review: A Sense of the Ending

—*Yale Medicine*  
Winter 1982

"'A Sense of the Ending' is a television production about terminal illness as seen from the quite different perspectives of two women who had cancer. It was directed and produced by William Guth, director of Media Communications, Yale School of Medicine.

"Richard Sewall, professor emeritus of English at Yale, related with compassion and poetry 'the very remarkable experience' of his wife Mathilde's death. Mrs. Sewall, a potter and weaver, was a woman whose spirit and sense of humor remained until the day she died at their home in Bethany, Connecticut. ...

"Charlotte Barnard spent the last six months of her life in the hospital, conscious—reading and 'thinking about things'—and attached to an intravenous, hyper-elementation [sic] life care pump, with a tube out of her nose. She, too, was a woman of tremendous courage and a sustaining sense of humor. She had hoped to be able to die at home, but circumstances of her death necessitated hospitalization.

"During those six months, Mrs. Barnard did a great deal of thinking about her situation and what she could do to improve similar experiences of other patients. She agreed to be interviewed for a short videotape prepared for a seminar on medical ethics for Yale medical and law students. Her physician and friend, Dr. Howard Spiro, professor of medicine and well-known gastroenterologist, conducted the provocative and moving interview."



Please complete the attached and return it

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JULIE BROWN

#### CADAVER BALL MARKS END OF FIRST-YEAR ANATOMY COURSE

On March 24 about 200 revelers gathered at the New Haven Lawn Club to celebrate the end of the first-year anatomy course in an annual ritual known as the Cadaver Ball. A longstanding tradition at medical schools around the country, at Yale the celebration is held in conjunction with a service honoring the individuals who have donated their bodies to the medical school. Those attending the ball included faculty; most first-year medical students; and students from other classes and from the public health and graduate school departments. Bryan Hong, one of the organizers of the ball, danced with his girlfriend, Laura Hahn.

—John Curtis

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# yale medicine

Biotech and great  
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An alum receives  
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44

winter 2008

What Yale physicians and medical students  
learned in Uganda







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### COVER

During their rotations in Uganda, residents and medical students visited camps for internally displaced persons. Fighting between the government and the Lord's Resistance Army has displaced hundreds of thousands of people in northern Uganda, such as these boys at the Patiko-Ajulu camp.

### BACKGROUND

Majid Sadigh examined a patient in a neighborhood on the outskirts of Kampala, Uganda's capital. House calls to outpatients of St. Stephen's Hospital are part of the rotations for attendings and medical students.

*Photographs by John Curtis*

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For Yale physicians, residents and medical students, a few weeks at Mulago Hospital in Kampala become a life-changing experience.

*By John Curtis*

### 30 A tale of two doctors

John Elefteriades and Larry Cohen have worked together at Yale for 30 years, as student and mentor, as colleagues and, most recently, as co-authors of a book about the heart.

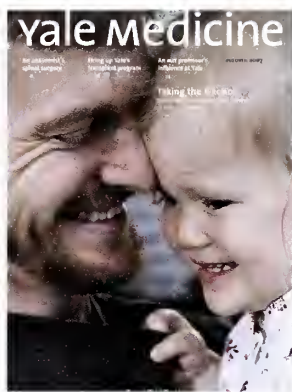
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### On the Web

[yalemedicine.yale.edu](http://yalemedicine.yale.edu)

On our website, readers can submit class notes or a change of address, check the alumni events calendar, arrange for a lifelong Yale e-mail alias through the virtual Yale Station and search our electronic archive.



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### Yale should produce more primary care physicians

I would be truly impressed if Yale pursued the path of producing more primary care physicians. As a "liberal" institution of higher learning, where is the responsibility? Lifestyle is important but that was not what medicine was or is about. As for an ophthalmology attending seeing 40 to 60 patients in 10 hours, I am speechless. Who is teaching?

*Harvey Davis, M.D., HS '69  
Virginia Beach, Va.*

### Primary care is vanishing as a practice model

Regarding "Taking the E-ROAD" [*Yale Medicine*, Autumn 2007], I'd like to tell the academics who decry the decline in the number of primary care physicians why I left primary care in 1968. It had nothing to do with lifestyle or economics. I didn't leave primary care, primary care left me.

The whole practice model was disappearing. I lay awake nights wondering what to do and told my patients that if they could scare up 1,500 families who would let me deliver their babies, treat their fractures, take care of their kids, etc., then I would stay. This was a feeling shared by many of my contemporaries. But the climate was rapidly changing and the academics were clueless as to the reasons. Family practice disappeared, never to return. The change wasn't just within the medical community but in American society as a whole. As an example, house calls didn't disappear because physicians wouldn't make them but because people stopped asking for them.

The young doctor who wrote the article has never been exposed to one generalist supervising care. The medical school hospitals I am familiar with (Yale, where I went to medical school, and Dartmouth, in the area where I now live) have simply never had that model. And I don't know that they can.

Following my wife's surgery, a serious post-op problem was handled without talking to her family. Consults were gotten, care discussed and treatment ordered without talking to the patient's spouse or family doctor until, after four days, in desperation, the husband (me, an M.D.) insisted the primary care M.D. be called. With his background knowledge the primary care M.D. corrected the problem immediately. When I protested the lack of communication I discovered that the primary care M.D. had no privileges even though he is part of the Dartmouth-Hitchcock Medical Center system. I have yet to be talked to by anyone but the intern—even three years later! Today's medical student never sees the kind of practice that was once so common in community hospitals. He or she has no role model, a fact that is sad but true. The current primary care model bears no resemblance to what I knew and the modern version is no replacement.

*Robert P. Gerety, M.D. '52  
White River Junction, Vt.*

#### Yale Medicine

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## Lessons from Uganda

When I returned from Uganda in July, people who asked about my reporting trip to Mulago Hospital assumed that the Yale attendings and residents had gone there to teach. It would seem to make sense that professionals coming from one of the leading universities in the richest country in the world and with access to the latest medical technologies would have much to teach the doctors and medical students at a hospital in one of the world's poorest countries. In fact, the reverse was often true. In the middle of one Yale doctor's first day on the wards at Mulago, he lamented how ineffectual he felt. Said Sam Luboga, M.D., deputy dean of the Faculty of Medicine at Makerere University in Kampala, "When people come here they can really feel bewildered. They find a hospital full of patients, without drugs, without supplies."

At Mulago the Yale doctors became the students, with a lot to learn from their Ugandan colleagues. Denied all the accoutrements of modern medicine that are part of their daily lives, the Yale physicians fell back on the most basic tool of medicine—the physical exam—at which the Ugandan doctors excel. This is not to say that the Yale doctors had nothing to offer. While at Kampala, the Yale attendings and residents taught evidence-based medicine and provided new

models for interactions with patients. The collaboration has also brought to Uganda textbooks and access to electronic medical texts. Both Makerere University and Yale University stand to benefit from the collaboration, which is expected to improve clinical care in New Haven as well as in Uganda.

In this issue we also feature profiles of two doctors who specialize in the heart. John A. Elefteriades, M.D. '76, HS '83, chief of cardiothoracic surgery, learned the basics of cardiology from Lawrence S. Cohen, M.D., HS '65. The two started as student and mentor, became colleagues and are now co-authors of a book about the heart, *Your Heart: An Owner's Guide*.

On November 30 we learned of the passing of Nicholas P.R. Spinelli, M.D. '44, a warm, kind and generous man and a good friend to all of us at *Yale Medicine*. When we were next door to the Office of Alumni Affairs, he often took the time to chat with us and ask us what stories we were working on or to suggest ideas for articles. And he always had something nice to say about our latest issue. We will miss him.

John Curtis  
Managing Editor

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## SECOND OPINION BY SIDNEY HARRIS



## Biotech spinoffs fuel New Haven economy

2007 was a banner year for startup companies based on discoveries in Yale labs.

"Restaurants. Good restaurants." The surge in upscale eateries opening in New Haven, said Jon Soderstrom, PH.D., managing director of the Office of Cooperative Research (OCR), is one way of gauging Yale's efforts to build up the local biotechnology industry. When a decade ago Yale made its commitment to create new business ventures based on laboratory discoveries, city gourmets could point to fewer than a handful of top-flight restaurants. Today diners have more than a score to choose from, and Yale's head of technology transfer thinks much of the credit belongs to biotech.

"Biotechnology has made a substantial difference in the economic climate of the city," said Soderstrom. Investment

in new and existing Yale ventures reached its highest level yet during the 2007 fiscal year that ended on June 30.

According to OCR's year-end report, outside investors provided close to \$70 million in fiscal 2007 to launch seven companies based on Yale discoveries. Bioscience companies already in the region secured around \$400 million in new cash for operations. That's on top of more than \$1.5 billion in private biotechnology investment to date, a portion of it going to the 25 new companies established by the OCR.

Among the newly launched companies was BioRelix, which will develop antibiotics based on discoveries about bacterial RNA targets made in the laboratory of Ronald R. Breaker, PH.D., the Henry Ford II Professor of Molecular, Cellular and Developmental Biology and professor of molecular biophysics and biochemistry. The company received nearly \$26 million from investors. Existing company Achillion Pharmaceuticals received \$52 million

from its initial public offering, part of which will fund development of an antiretroviral therapeutic based on work done by Yung-Chi "Tommy" Cheng, PH.D., the Henry Bronson Professor of Pharmacology.

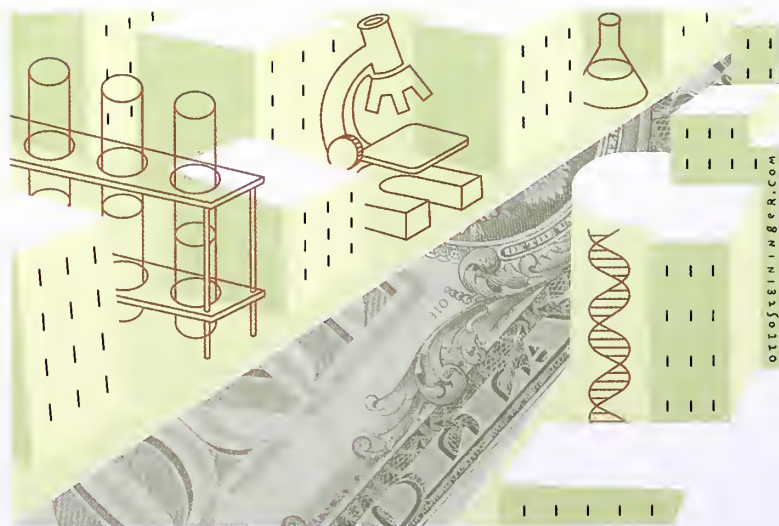
Achillion is one of numerous young companies based in 300 George Street, a former telephone company office building now converted to laboratory space. The building's nine floors are nearly full, and private developers are planning to construct a new building nearby for biotechnology companies.

Venture capital firm CHL Medical Partners has already invested more than \$25 million in eight Yale spinoff companies. CHL partner Jeff Collinson, a 1963 Yale College graduate, recalls that before OCR began its push few laboratory facilities existed for fledgling companies and his firm had to look outside the region for experienced executives and skilled labor. Now, he said, "biotechs have good laboratory facilities ready to move to New Haven and there's a pretty good labor pool to recruit from, so it's much easier to get a company started."

Said Paul R. Pescatello, J.D., PH.D., president and CEO of CURE, an organization supporting bioscience in Connecticut: "I travel to meetings around the world. My sense is that qualitatively Yale is regarded as highly as any academic medical center in the world" for developing biotechnology enterprises. But quantitatively the region lags, he said, behind Cambridge, South San Francisco, San Diego and other areas with more prominent biotechnology sectors. Those areas, he said, have "other engines" to generate new ventures, while New Haven relies almost solely on Yale.

Soderstrom agreed: "New Haven is an emerging phenomenon. We're a work in progress. But 10 years ago it was hard to get venture capitalists to come to New Haven. Today they're here all the time." And new restaurants keep opening.

—Marc Wortman





## Eyeing "broader impacts," Yale bolsters efforts to bring science to local schools

High school students in New Haven and neighboring communities are reaping benefits from a federal effort to encourage them to study science and engineering. Because fewer college undergraduates and graduate students are pursuing careers in the sciences than in the past, national organizations are asking researchers to help recruit the next generation of scientists. According to Kathie L. Olsen, PH.D., deputy director and chief operating officer at the National Science Foundation (NSF), the percentage of students remaining in science and engineering after obtaining a master's degree dropped from 23 percent in 1995 to 15 percent in 2003.

The NSF believes that if science were brought into the classroom and presented by scientists in a compelling way, more students might choose careers in

science. NASA and other major funding sources, including the National Institutes of Health, have followed the foundation's lead. As a result, since 2002 the NSF has required scientists to include a community outreach plan or a "broader-impact" component in their grant applications.

Yale faculty, staff and students were already running science outreach programs that brought more than 10,000 New Haven young people into free Yale-sponsored programs each year. The NSF broader-impact requirement meant that hundreds more researchers would be getting involved in science outreach.

Claudia R. Merson, the public school partnerships director in Yale's Office of New Haven and State Affairs, said reaction to the NSF initiative was immediate. "Suddenly, researchers were approaching us saying, 'I want to do some outreach. What can I do?'" Yale responded by convening a science outreach advisory committee that recommended appointing a coordinator for community programs.

Joanna Price, PH.D., whose degree is in molecular biology and biotechnology, took on the job earlier this year. Her goal is to support and expand the many science education programs being offered. She will help faculty members interested in science outreach identify potential partners within the university as well as

in the community; facilitate information and resource-sharing among the university's science outreach programs; and serve as a liaison to area schools. A new website, [www.yale.edu/scienceoutreach](http://www.yale.edu/scienceoutreach), lists all of Yale's science programs available for the public.

So far Price has helped with four grant applications and launched a number of initiatives, including a series of talks at Hill Regional Career High School. She's also working on a \$1 million project to enhance science education in public schools, a program undertaken as part of the university's purchase of the Bayer facility in neighboring Orange and West Haven.

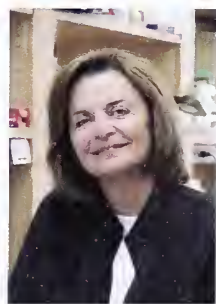
Price's position is funded by the provost's office, the Howard Hughes Medical Institute and the NIH and has the support of existing Yale science outreach programs and from the Yale University Peabody Museum of Natural History.

Now that Yale has a conduit between researchers and K-12 educators, Merson is confident that up-to-date information on a full range of science-related topics will reach and excite the scientists of tomorrow. "We have always had amazing people here doing world-class research," she said. "Now we have an organized way to share that with the community."

—Jennifer Kaylin

## YALE SCIENTIST TAPPED TO LEAD WELLESLEY COLLEGE

H. Kim Bottomly, PH.D., a renowned immunobiologist and a deputy provost at Yale, became the 13th president of Wellesley College in Massachusetts in 2007. As deputy provost, Bottomly led an initiative to add women and minorities to the Yale faculty. As a scientist she focused on factors that influence the initiation of immune responses. She has served as a member of the Immunobiology Study Section of the National Institutes of Health and was appointed to the Advisory Council of the National Institute of Allergy and Infectious Diseases.



MICHAEL MARSLAND

## New building on Amistad Street: a place “where great science is done”

Taking a page from theoretical physics, scientists at the School of Medicine’s newest building will shorten the distance between two places—the bench and the bedside. “This is the future,” declared President Richard C. Levin at the October 5 ribbon cutting—a future shaped by interdisciplinary teams quickly translating basic science into clinical solutions.

The 120,000-square-foot building at 10 Amistad Street will house three programs—the Interdepartmental Program in Vascular Biology and Therapeutics, the Human and Translational Immunology Program and the Yale Stem Cell Center. These programs, each of which draws on faculty throughout the university, were identified as crucial to the medical school’s strategic plan, said Robert J. Alpern, M.D., dean and Ensign Professor of Medicine. A lack of lab space, for example, had limited growth in vascular biology. The stem cell center needed facilities after Haifan Lin, PH.D., a leading researcher, was

recruited to initiate the program with the help of a \$7.8 million grant from the state of Connecticut. And, Alpern said, the new facilities will “capitalize on our incredible strength in immunology.”

The \$88.6 million structure is the latest to be built under a \$1 billion plan to expand science facilities at Yale. The dedication came just as the university acquired 550,000 square feet of laboratory space at the Bayer HealthCare Company’s former headquarters in West Haven.

With workstations for more than 250 scientists, the building on Amistad Street offers sophisticated microscopy and technology for cell sorting and is environmentally sustainable. Designed by Herbert S. Newman and Partners, a New Haven-based firm, with lab spaces planned by Ellenzweig Associates of Cambridge, Mass., the building features lights that turn off automatically, rainwater collection and other green features.

The day began with a symposium on translational and regenerative medicine. Salvador Moncada, M.D., PH.D., D.SC., director of the Wolfson Institute for Biomedical Research,

University College London, spoke on the role of nitric oxide in regulating mitochondria and cell bioenergetics. Douglas A. Melton, PH.D., co-director of Harvard University’s Stem Cell Institute, outlined his research into the growth and development of pancreatic cells in humans and other vertebrates. Marc Feldmann, F.MED.SCI., director of the Kennedy Institute of Rheumatology at Imperial College, London, gave a talk with an intriguing title, “Anticytokine Therapy: An Approach to All Unmet Medical Needs.” Feldmann and his colleagues proved that anticytokine therapy, which targets the overproduction of hormone-like proteins that regulate the body’s immune response, is effective in treating rheumatoid arthritis and other autoimmune diseases. “Every disease has its cytokine irregularities, and there should be therapeutic targets,” Feldmann said.

Feldmann’s vision of dramatically improved human health was endorsed by speaker after speaker, including Provost Andrew D. Hamilton, PH.D. “This is going to be a place where great science is done,” he said.

—Colleen Shaddox

From left, Andrew Hamilton, Richard Levin, Robert Alpern, Jordan Pober, William Sessa and Haifan Lin marked the official opening of the new research building on Amistad Street in October. The 120,000-square-foot building will house Vascular Biology and Therapeutics, Human and Translational Immunology and the Yale Stem Cell Center.



TERRY DAGRADI



## Summer program brings high school students into Yale labs to do research

Four years ago Gil G. Mor, M.D., associate professor of obstetrics, gynecology and reproductive sciences, was thinking of ways to get local high school students interested not just in science but also in studying science at Yale.

"Kids in the area would never apply here," he said. "They always think Yale is something belonging to a completely different world. And then there's a decrease in the number of these young kids going into science and medicine."

So Mor initiated the Discovery to Cure program, which brought six high school juniors into Yale research labs that summer. The same year, Mor also asked teachers at the participating high schools how many of their students planned on applying to Yale. The answer was zero. But last year four students in the program applied to Yale, and two are now attending. Other program graduates went on to study science and medicine at such schools as Harvard, Cornell and the University of Chicago. Some have returned to Yale for summer research as undergraduates. Last summer, the fourth year of the program, 20 students spent six weeks in Yale labs.

The new program joins other Yale initiatives to bring high school students into research labs. For several years students at New Haven's Hill Regional Career High School have lived on campus in a summer program during which they participate in small-group problem-based learning. And the Anatomy Teaching Program has brought Career students to the anatomy lab for sessions led by medical students.

"We were a little afraid of bringing teenagers into the lab," Mor said. "They might break things, damage things. But the opposite happened. They contributed to the lab. The work that they did was outstanding."

Kaitlin Markoja from Cheshire High School studied the connection between the immune system and pregnancy in



**At Science Day last summer, high school students in the Discovery to Cure program presented their work. "During four hours we were able to enjoy the capacity of these young minds to acquire, digest and transmit complex concepts," said Gil Mor, the program's director.**

Mor's lab. "People who are pregnant don't respond to viruses in the same way as other people, and we're trying to understand this," she explained.

Markoja's summer research cemented her plans to pursue a career in science or medicine. "It was such a hands-on experience," she said.

Irene Visintin, a research associate who coordinates the program with Mor, said complete immersion is what makes this opportunity so remarkable. "We don't want them in there washing dishes. That's not the goal," she said. Not only do the students contribute to research, but they also remind some of the more senior researchers why science is fun. "They ask a million and one questions and run around smiling," Visintin said.

Kelsey Hogan, a budding neuroscientist from Mercy High School, a parochial school in Middletown, Conn., worked in the lab of Tamas L. Horvath, D.V.M., PH.D., professor of comparative medicine, of neurobiology and of obstetrics, gynecology and reproductive sciences. She studied the effects of maternal obesity on mice offspring, spending most of her days dissecting brains to look for dye that indicated the activity of cells that control appetite.

This gory and repetitive work could turn some people away from science. But Kelsey loved it. "This was the best summer vacation I've ever had," she said, grinning.

—Sarah C.P. Williams

et cetera ...

### STRESS AND ADDICTIONS

Yale researchers have received \$23 million from the National Institutes of Health to study how stress fuels addictions. They hope to understand why some people stick their hand in a cookie jar, smoke a cigarette or gulp cocktails when they're overworked, have family conflicts or can't balance their responsibilities. These studies could lead to new ways to combat the cravings of addiction and improve control over excessive smoking, drinking and eating.

"Stress is the kind of topic that really begs for being studied in an interdisciplinary way, because it affects every organ system in some way or another," said Rajita Sinha, PH.D., professor of psychiatry and leader of a research consortium that will include psychiatrists, neuroscientists, social psychologists and communications and policy experts.

They will analyze the ways in which events early in life shape a person's ability to handle stress; use neuroimaging to illuminate changes in the brain under stress; and explore the effects of pharmacological agents on stress and on lapses in self-control over such addictive behaviors as smoking, drinking alcohol and overeating. The consortium will also organize population-based studies as well as genetic analyses of vulnerability to stress-related addictive behaviors.

—S.C.P.W.

### YNHH AMONG BEST IN NATION

Yale-New Haven Hospital has been included in the 2007 "America's Best Hospitals" rankings published in July by *U.S. News & World Report*. The hospital was rated among the best in the nation in 10 of the 16 medical specialties evaluated: cancer; digestive disorders; ear, nose and throat; endocrinology; gynecology; heart and heart surgery; kidney disease; psychiatry; respiratory diseases; and urology.

"This recognition is a significant benchmark for Yale-New Haven Hospital as to where we are among the nation's best health care providers," said Peter N. Herbert, M.D. '67, chief of staff. "We are proud to be included among the very best in so many specialty areas over such a long period of time."

—John Curtis



Four of the five members of the Block family in this picture, Daniel Block, Jake Block, Aaron Lewis and Beverly Lewis inherited a mutation in the 10th chromosome that causes a severe form of thyroid cancer. They inherited the mutation from Burton Block, the late husband of Alyce Block, seated.

## A gene mutation passes down generations

Yale surgeon Julie Ann Sosa has performed thyroid surgeries on five members of the same family.

Horizontal scars across their throats, although now fading, remind members of the Block family of what they have been through in the past year. Last summer, doctors at Yale found that this family of cattle farmers from Monroe, Conn., has been passing more than hair and eye color between generations; the family's 10th chromosome harbors a mutation that causes a rare and severe form of thyroid cancer.

Since this discovery, 13 members of the extended family have been diagnosed with the mutation and 10 have had their thyroids removed. Five of the surgeries took place at Yale-New Haven Hospital (YNHH) under the supervision of Julie Ann Sosa, M.D., assistant professor of surgery.

Sosa, who specializes in thyroid cancer, said that the mutation that the Blocks carry, called *MEN2A*, is extremely rare and that most families in this country with the condition have been known to researchers for years. Sosa herself follows five such families. "Many endocrinologists go their whole lives without seeing any cases of this mutation," she said.

But last June, Beverly Block Lewis, 51, learned that she had medullary thyroid cancer. In a very few instances this rare cancer is inherited. "The genetic study we ran came back positive," said Sosa.

Beverly already had hypothyroidism, a deficiency of thyroid hormone, which

she inherited from her mother's side of the family. The condition was the reason for her routine endocrinology appointments. The family assumed the thyroid cancer would also come from the maternal side.

But testing showed that Beverly inherited her mutation from her father, Burton Block, who was then found to have asymptomatic thyroid cancer. Two of Beverly's siblings, her son and two nephews were also diagnosed with the mutation. All but 4-year-old nephew Jake already had cancer.

"Every diagnosis was a new blow," said Alyce Block, Beverly's mother. "Every time was as hard as the first."

For Beverly's recently married son, Aaron Lewis, 28, one of the biggest challenges was thinking about future generations. "Kids that aren't even born yet are going to be affected," he said.

Over the next several months, YNHH became like a second home for the family members, who were constantly in and out of the hospital with each successive surgery.

But every operation went well and the family pulled through. After his thyroid surgery, 83-year-old Burton also survived a near-fatal car accident that landed him back at YNHH, just doors away from where his son Dan was recovering from a pulmonary embolism following thyroid surgery.

In August, more than a year after the family's medical saga began, Burton passed away due to inoperable pancreatic cancer unrelated to the thyroid cancer. "He's really taught us a tremendous amount about strength and patience," said Beverly, standing at Burton's bedside a month before his death. "And the importance of a close-knit family bonding together," added Alyce.

—Sarah C.P. Williams



## Blood vessels made from scaffolds and stem cells soon to be in clinical trials

Two Yale physician-scientists are creating a living organ from scratch, coaxing cells to form artificial tissue that can be used to repair or replace faulty blood vessels. Christopher K. Breuer, M.D., assistant professor of surgery and pediatrics, and Toshiharu Shinoka, M.D., PH.D., associate professor and director of pediatric cardiovascular surgery at Yale-New Haven Children's Hospital, believe their tissue engineering project could lead to the building of more complex organs.

"We figure if you start with blood vessels, that's going to be the first step in making just about anything," said Breuer. "Plus, there's an immediate need for vessels in vascular and cardiovascular surgery."

Because the blood vessels Breuer and Shinoka have created rely on stem cells from a patient's own bone marrow, they are not prone to the inflammation or rejection that affects transplanted tissue. And they are living organs that can grow as a child grows.

When a child is born with such defects as a heart with only a single ventricle, doctors first try to form the child's own tissue into new vessels that can be used as grafts. "But the problem is these children usually require multiple grafts and you never have enough tissue," said Breuer. Such alternatives as synthetic Gore-Tex grafts may lead to infections and blood clotting, while biological grafts from animals tend to calcify and need replacement.

Breuer and his colleagues designed a scaffold in the shape of a vein with

materials used to make absorbable sutures. They then coat the scaffold with bone marrow stem cells. As blood flows through the vein, the stem cells attract cells from elsewhere in the body to form a blood vessel around the scaffolding. As the vessel forms the original matrix dissolves. The resulting vessel can grow over time, and its elasticity matches that of the body's own blood vessels.

Over the past six years, Shinoka has used the process successfully in 47 children in Japan. The technique works well and the grafts have an excellent safety profile, he said, and no patients have needed replacement of tube grafts. Shinoka and Breuer expect to hear soon about their application to the U.S. Food and Drug Administration to conduct clinical trials of their grafts at Yale, but they also continue to pursue improvements in their techniques.

Breuer said that his next goal is to figure out which chemical in bone marrow is attracting cells to the scaffolding. He hopes to isolate that compound and build it into the matrix to eliminate the intermediate step of drawing bone marrow from each patient. "We would have immediate off-the-shelf availability when a patient needed a graft," he said.

—S.C.P.W.

et cetera...

## YALE JOINS HYPERTENSION NETWORK

Two School of Medicine scientists will join colleagues in Switzerland, France and Mexico in a collaboration to pinpoint the role of the kidney in high blood pressure. The Transatlantic Network on Hypertension—Renal Salt Handling in the Control of Blood Pressure has received a five-year, \$6 million grant from the Leducq Foundation, a Paris-based organization that supports international research collaborations in cardiovascular disease.

The exact causes of hypertension, one of the most important risk factors for such cardiovascular diseases as stroke and heart attack, remain unknown. The kidney's management of salt levels, however, plays a major role.

Leading the Yale team are Steven C. Hebert, M.D., the C.N.H. Long Professor and chair of cellular and molecular physiology, and Richard P. Lifton, M.D., PH.D., Sterling Professor and chair of genetics.

"The Leducq program," Lifton said, "allows us to bring together a 'dream team' of investigators from around the world with diverse expertise in physiology, genetics and clinical investigation to combine forces to tackle this important medical problem."

—John Curtis

## RESIDENTS FALL SHORT ON STATS

Most medical residents don't understand statistics in medical literature, calling into question their ability to interpret research data, according to a survey by Yale researchers published in the September 5 issue of *JAMA: The Journal of the American Medical Association*. In a survey of 277 internal medicine residents in 11 programs, residents scored an average of 41 percent. Senior residents performed worse than junior residents, suggesting that, with the passage of time, knowledge was lost or not reinforced.

"Most residents in this study lack the knowledge in biostatistics needed to interpret many of the results in published clinical research," said corresponding author Donna M. Windish, M.D., M.P.H., assistant professor of medicine. "Residency programs should include more effective biostatistics training in their curricula to successfully prepare residents for this important lifelong learning skill."

—J.C.

## Rewriting the book on the human genome

After four years of research, an international effort finds that junk DNA may not be junk after all.

A study published in *Nature* last summer has revealed a much more complex view of the vast, uncharted regions of the human genome than previously supposed. "Junk DNA," noncoding sequences that make up the bulk of the genome's 3 billion letters, may indeed have a purpose. Now the challenge is to figure out what all that DNA is for. Doing so may prove crucial for understanding complex human diseases.

"We're trying to map out what's there," said Michael Snyder, PH.D., professor of molecular, cellular and developmental biology.

Snyder's lab is part of the Encyclopedia of DNA Elements (ENCODE) project, a mammoth undertaking of the National Human Genome Research Institute (NHGRI) at the National

Institutes of Health (NIH) involving 35 groups of researchers at 80 institutions in 11 nations. Researchers have spent the last four years sifting through more than 400 million data points to make sense of just 1 percent of the human genome. Their analysis has turned up some surprises.

For one thing, the genome hosts a lot more activity than expected. The conventional wisdom has long held that the important pieces of DNA—the readily decipherable genes making up 1.5 percent of the genome—are converted into RNA via a process called transcription. RNA in turn instructs the cell to make proteins. Scientists have long assumed that in general each gene is transcribed into one RNA fragment and that the remaining gene-free portions of our DNA aren't transcribed at all.

Not so, according to the ENCODE project. Most letters in the genomic instruction manual wind up being transcribed. Each gene is often transcribed along with a surprisingly large number of nonprotein-coding (NPC) sequences

to produce some extraordinarily long RNA fragments. A single gene can be transcribed into many different RNA fragments of varying lengths. The purpose of all these extra transcripts remains unclear.

Even more perplexing is the prevalence of RNA molecules transcribed entirely from gene-free portions of the genome. NPC RNA transcripts were previously known to exist, but the ENCODE project identified many new ones. Again, their purpose is unknown.

Snyder is even more excited that the project has identified new regulatory regions that do not encode proteins but instead control when, where and to what extent genes are expressed. Recent studies have linked complex diseases with variations in NPC regions of the human genome that could have regulatory functions. Might variations in NPC DNA promote disease by interfering with the expression of genes at distal sites?

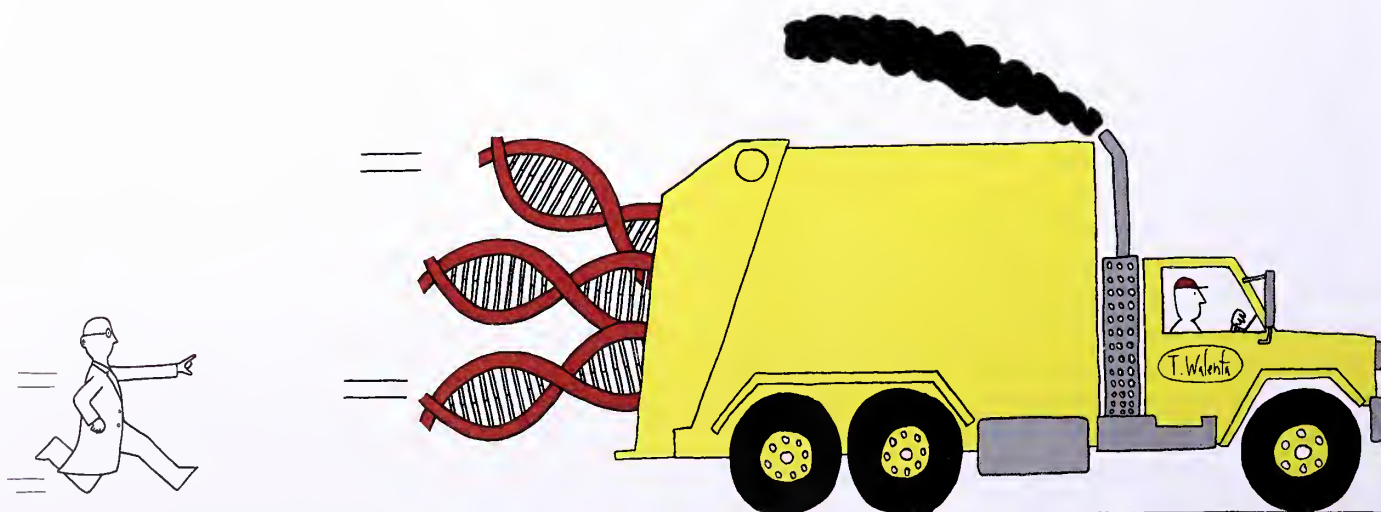
Snyder and his collaborators hope that the project will answer such questions. "This is really what the ENCODE project is all about," he said.

—Robin Orwant



podcast

A podcast of Michael Snyder speaking on this subject can be found on the Yale page on iTunes U. Visit [itunes.yale.edu](http://itunes.yale.edu) or launch iTunes, then select Yale from the offerings under iTunes U. The podcast is included under "Yale Science."





## An atomic view of a protein offers insights into a new target for cancer drugs

A research team led by Joseph Schlessinger, PH.D., the William H. Prusoff Professor and chair of pharmacology, has solved the atomic-level structures for active and inactive forms of a protein segment implicated in several types of cancer, opening up a new set of molecular targets for cancer therapies.

The results, reported in the July 27 issue of *Cell*, highlighted previously unidentified changes in the protein's structure that seem to be crucial for its activation. "It gives us totally new avenues for developing drugs for a large group of target proteins that are responsible for several cancers," Schlessinger said.

The study focused on one of 59 receptor tyrosine kinases (RTKs), a set of related proteins whose activities have long been linked with cancer. Normally, RTKs become active only under particular circumstances in order to help cells proliferate, differentiate and survive. But certain mutations in RTKs can turn on the proteins inappropriately, causing aberrant cell proliferation that may lead to cancer. Blocking the activities of RTKs has become a major strategy in anti-cancer drug design.

Two recently developed and highly successful cancer-fighting drugs, Gleevec and Sutent, work in this way. Gleevec is effective against some stomach cancers and leukemias; Sutent works against stomach and some kidney cancers. But Schlessinger, who helped discover Sutent, said many cancers don't respond to Gleevec or

Sutent and those that do develop resistance to the drugs.

Schlessinger's laboratory has spent the last 10 years assembling an atomic-level view of the extracellular domain of an RTK called Kit. By comparing the structure of the protein segment (representing Kit in its inactive state) with that of the active form, his research group has identified changes in Kit that are important in understanding its activation.

The results suggest that in their active state Kit molecules change their shape such that certain portions of the extracellular domain in one Kit molecule move close enough to interact with their counterparts on the other Kit molecule. Schlessinger and colleagues have also provided evidence that these previously unidentified interactions are required for Kit activation, and mutations predicted to strengthen the interactions are known to contribute to various forms of cancer.

Since Kit is part of a family of RTKs with similar extracellular domains, the targets represented by this study probably exist in more than a half-dozen other RTKs that have been implicated in various cancers. "It's a mechanism that is likely to be universal to quite a few of these RTKs," Schlessinger said.

Drugs aimed at these new targets might be effective against Gleevec- and Sutent-resistant cancers, offering hope to many cancer patients who are trying to stay one step ahead of the enemy.

—R.O.

## NANOTUBES CAN KILL BACTERIA

A study to measure the toxic effects of nanotubes on human cells has led to a possible new approach to treating antibiotic-resistant infections.

In a paper published in the August 28 issue of the American Chemical Society journal *Langmuir*, Yale researchers said that single-walled carbon nanotubes (SWCNTs) can kill such bacteria as *E. coli*.

"We began the study out of concern for the possible toxicity of nanotubes in aquatic environments and their presence in the food chain," said Menachem Elimelech, PH.D., the Roberto C. Goizueta Professor and chair of chemical engineering. "While nanotubes have great promise for medical and commercial applications, there is little understanding of how they interact with humans and the environment."

Elimelech speculates that the long, thin nanotubes puncture the cells and cause cellular damage. "We are looking at the effects of SWCNTs on a wide range of bacterial strains to better understand the mechanism of cellular damage," Elimelech said.

—John Curtis

## TO BEAT CANCER, EAT YOUR VEGGIES!

Kids aren't the only people who should pile more vegetables on their dinner plate. A study published in the August 1 issue of *JNCI: Journal of the National Cancer Institute* shows that men who regularly eat broccoli, cauliflower, cabbage, Brussels sprouts and turnips are 40 percent less likely to develop advanced prostate cancer than those who consume few of these veggies.

"All these vegetables have compounds called glucosinolates that have been shown to protect cells from DNA damage in the lab, and thus may be anticarcinogenic," said lead author Victoria Kirsh, PH.D., a former doctoral student of Susan T. Mayne, PH.D., professor of epidemiology. Kirsh is now at Cancer Care Ontario.

To make sure that men who consume more vegetables aren't just more likely to get prostate screening tests than others, Kirsh used data that identified 1,338 men diagnosed with prostate cancer out of 29,361 who were screened.

—Sarah C.P. Williams

## Gay men's fears of long-term romance

A psychoanalyst argues that the way gay men's parents treat them affects their adult relationships.

The night in June 1969 that gay men fought police raiding the Stonewall Inn in Greenwich Village marked the beginning of wider acceptance of male homosexuals. Homosexuality has not been considered pathological by mainstream psychiatry since the 1970s, and in the years that followed gay couples have begun to acknowledge their partnerships publicly.

"There's much more social acceptance than there was 20 or 30 years ago," said psychiatrist and psychoanalyst Richard A. Isay, M.D., HS '65.

Many gay men are still suffering, however, said Isay. The main, though not the only, source of their distress, he thinks, lies in the ways their parents treated them as children. He believes that the social acceptance of homosexuality "has not filtered down to the way homosexual boys are raised." Fathers tend to criticize or shun sons who dislike rough sports, play with dolls or otherwise prefer stereotypically feminine pursuits. Mothers who enjoy the sensitivity and shared interests of gay sons may lean too much on them, using them to fulfill their unmet emotional needs.

Isay believes that these dynamics can prevent adult gay men from forming long-term romantic bonds. "Boys may grow up mistrusting the love of another person and will find many other ways of finding the self-esteem enhancement that they missed in childhood," said Isay. Many gay men seek affirmation not through an enduring, loving relationship, he said, but in cultivating large networks of friends, pursuing transient sexual liaisons, focusing on professional success and creating flawlessly appointed environments for themselves.

In his new book, *Commitment and Healing: Gay Men and the Need for Romantic Love*, Isay describes how therapy can help provide gay men with insight into the effects of childhood influences on the capacity to commit to a partner. In a book accessible to nontherapists and illustrated with case



Richard Isay hopes that his new book, *Commitment and Healing: Gay Men and the Need for Romantic Love*, will lead gay men to examine how their upbringing affects their adult romantic relationships.

studies, Isay shows how gay men can recover from childhood wounds and learn to sustain committed monogamous partnerships. A clinical professor at Weill Medical College of Cornell University and a faculty member at the Columbia University Center for Psychoanalytic Training and Research, Isay draws upon his experience as a Manhattan psychotherapist with mostly gay clients.

Isay published his first book, *Being Homosexual: Gay Men and Their Development*, in 1989, at a time when he was coming out. He was the first openly gay member of the American Psychoanalytic Association. His 1996 book, *Becoming Gay*, outlines the ways in which gay teenagers and adults develop self-acceptance.

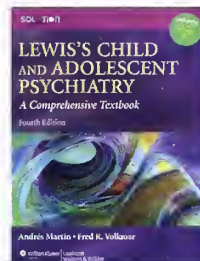
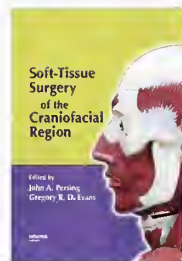
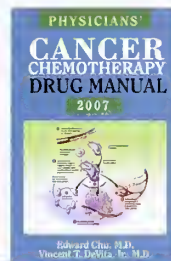
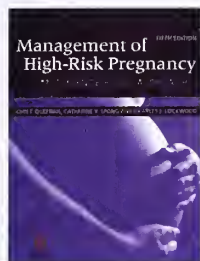
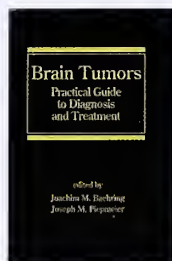
Isay said that his new book has stirred up some controversy because he argues that gay couples who tolerate sexual adventures outside the partnership may do so out of an unconscious fear of closeness rather than a sense of liberation from traditional heterosexual strictures. "It runs counter to the prevailing doctrines of the gay community that maintain that our relationships are fine, more democratic and better than heterosexual relationships," said Isay.

He hopes that his new book will help gay men to examine the patterns of their romantic relationships and perhaps seek the guidance of a therapist attuned to gay issues. He'd like parents to pay attention to the way they treat their sons. Ideally, he said, even when a son doesn't act like a typical boy, "if both father and mother love him as they do their other children, if they value what he has to say about his attractions to others, then they can inculcate the value of love and can greatly influence how he forms loving relationships as an adult."

—Cathy Shufro

*Bookshelf* focuses on books and authors at the School of Medicine. Send suggestions to Cathy Shufro at [cathy.shufro@yale.edu](mailto:cathy.shufro@yale.edu).





### **Brain Tumors: Practical Guide to Diagnosis and Treatment**

by Joseph M. Piepmeier, M.D., HS '82, the Nixdorff-German Professor of Neurosurgery, and Joachim M. Baehring, M.D., assistant professor of neurology and neurosurgery (Informa Healthcare) This reference provides information to help clinicians make accurate diagnoses and select the most appropriate treatment regimens for patients with primary and metastatic brain tumors or neurological complications of cancer. The guide reviews the epidemiology, identification and management of brain tumors while explaining the latest advances in the field.

### **Management of High-Risk Pregnancy: An Evidence-Based Approach, 5th ed.**

by Catherine Y. Spong, M.D., John Queenan, M.D., and Charles J. Lockwood, M.D., the Anita O'Keefe Young Professor of Women's Health and Obstetrics, Gynecology and Reproductive Sciences (Blackwell Publishing) This fifth edition focuses on factors affecting pregnancy, including genetics; diagnostic techniques; maternal diseases; biochemical and biophysical monitoring; anesthesia; complications of labor and delivery; and neonatal considerations. A resource for perinatal care and a reference guide to diagnosis and management of high-risk pregnancies, the book takes an evidence-based approach and expands on several important areas: genetics, Doppler ultrasound, AIDS, Group B streptococcal infections, pre-eclampsia and prematurity.

### **Physicians' Cancer Chemotherapy Drug Manual, 2007**

by Edward Chu, M.D., professor of medicine (medical oncology) and pharmacology, and Vincent T. DeVita Jr., M.D., HS '66, the Amy and Joseph Perella Professor of Medicine (medical oncology) and professor of epidemiology (Jones and Bartlett Publishers) Completely revised for 2007, this handbook provides an overview of the field of cancer chemotherapy. It includes a comprehensive catalog of more than 100 drugs commonly used in cancer treatment, including several new agents. The authors discuss anti-emetic drugs; clinical pharmacology; indications and dosages; and toxicity and drug interactions. The book also provides diagrams of drug structures and metabolic pathways.

### **Soft-Tissue Surgery of the Craniofacial Region**

by John A. Persing, M.D., professor of surgery (plastic) and neurosurgery; and Gregory R.D. Evans, M.D. (Informa Healthcare) This reference work covers the latest technologies in soft-tissue surgery to improve function and enhance cosmetic appearance for patients with disfiguring and debilitating facial defects from trauma, congenital deformity or disease. The book includes chapters on laser imaging, burn treatment, cleft palate reconstruction and facial paralysis.

### **Lewis' Child and Adolescent Psychiatry: A Comprehensive Textbook, 4th ed.**

by Andrés S. Martin, M.D., M.P.H., associate professor in the Child Study Center and of psychiatry, Fred R. Volkmar, M.D., the Irving B. Harris Professor in the Child Study Center and professor of psychiatry, pediatrics and psychology, and the late Melvin Lewis, M.B.B.S., HS '59, former professor emeritus and senior research scientist in the Child Study Center (Lippincott, Williams & Wilkins) The fourth edition of this classic text emphasizes the relationship between basic science and clinical research and integrates scientific principles with the realities of drug interactions. The book has been thoroughly updated, with two-thirds of the contributions coming from new authors. It also combines discussions of economic factors and diversity in the patient population with a strong focus on evidence-based practice. New chapters consider genetics; research methodologies and statistics; and the continuum of care. A companion website provides searchable access to the text.

### **Manual of Dermatologic Therapeutics: With Student Consult Online Access, 2nd ed.**

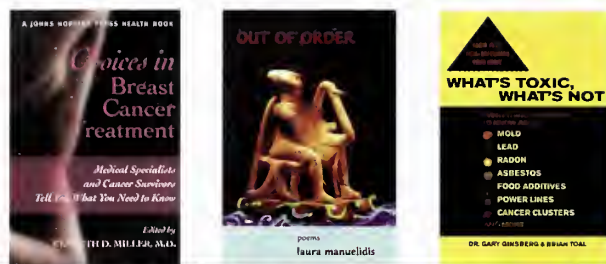
by Kenneth A. Arndt, M.D. '61, HS '62, and Jeffery H.S. Hsu, M.D. (Lippincott, Williams & Wilkins) This manual outlines the pathophysiology, symptoms, clinical findings and assessment of skin diseases as well as offering detailed guidelines for choosing among therapeutic options. An up-to-date formulary provides information on medications and other products used in dermatology.

### **Cell Biology: With STUDENT CONSULT Online Access, 2nd ed.**

by Thomas D. Pollard, M.D., Sterling Professor of Molecular, Cellular and Developmental Biology and professor of molecular biophysics and biochemistry and of cell biology, William C. Earnshaw, PH.D., and Jennifer Lippincott-Schwartz, PH.D. (Saunders) This text offers a modern approach to the study of cell biology. It explores the ways in which cellular structure, function and dysfunction result from specific macromolecular interactions. Boxes on most pages contain key principles, helpful summary tables, diagrams and research figures. The second edition contains a new chapter on the origin and evolution of life.

### **Preventive Cardiology: Insights Into the Prevention and Treatment of Cardiovascular Disease**

edited by JoAnne Micale Foody, M.D., associate professor of medicine (cardiology) (Humana Press) This new three-part edition provides an overview of opportunities to prevent the progression or, in some instances, reverse the process of coronary atherosclerosis and incorporate these strategies into the daily practice of clinical medicine. It represents a move away from the emphasis in the 1990s on technological interventions toward a molecular perspective. This book provides clinical cardiologists, internists, primary care providers and allied health care professionals with the tools and understanding necessary for practicing preventive cardiology.



### Pocket Guide to Chemotherapy Protocols, 4th ed.

by Edward Chu, M.D., professor of medicine (medical oncology) and pharmacology (Jones & Bartlett Publishers) Spiral-bound and arranged alphabetically by cancer type for easy access, this pocket guide serves as a quick reference for physicians, nurses and other health care providers treating cancer patients. The guide contains combination and selected single-agent regimens for solid tumors and hematologic malignancies. The regimens selected are based on published literature and are used in clinical practice in the medical oncology community.

### Choices in Breast Cancer Treatment: Medical Specialists and Cancer Survivors Tell You What You Need to Know

edited by Kenneth D. Miller, M.D., assistant professor of medicine (medical oncology) (Johns Hopkins University Press) This book combines contributions from specialists with personal narratives by breast cancer survivors. Topics covered include risk factors, screening, genetic testing, prevention, diagnostic methods, the doctor-patient relationship, surgical treatments, adjuvant treatments, breast reconstruction and clinical trials.

### Out of Order: Poems

by Laura M. Manuelidis, M.D. '67, HS '70, professor of surgery (neuropathology) (iUniverse) Although she is best known

for her work on spongiform encephalopathies, Manuelidis is also a poet whose work has appeared in the *Nation* and the *Connecticut Review*. In this collection, she writes of love and loss, of places remembered and of life's wonder and pain.

### What's Toxic, What's Not

by Gary L. Ginsberg, PH.D., lecturer in epidemiology, and Brian Toal (Berkley Trade) Every day, people work, live and play amid potentially harmful toxic substances, sometimes unwittingly. People are exposed to these substances in their homes, neighborhoods, schools, workplaces, foods and other consumer products. This comprehensive guide distinguishes between risks and myths, explaining how to identify problems and what to do about them. Charts to help assess risk, a special homebuyer's guide and Q&A segments discuss mold, lead, radon, asbestos, food additives, power lines, arsenic, mercury, pesticides, dioxin and toxic gases, as well as ways to guard against them.

*The descriptions above are based on information from the publishers.*

SEND NOTICES OF NEW BOOKS TO Cheryl Violante, Yale Medicine, 300 George Street, Suite 773, New Haven, CT 06511, or via e-mail to [cheryl.violante@yale.edu](mailto:cheryl.violante@yale.edu)

## For the busy researcher, help from medical librarians with publishing papers

Picture the typical researcher's desk, with journals piled high. Now imagine a librarian who can make those journals disappear—and reappear in a customized electronic library.

Perhaps you're an investigator ready to submit an article. After countless revisions you need a fresh pair of eyes. Enter an editor, referred to you by the medical library. The editor checks for spelling, punctuation and grammar and suggests ways to streamline the piece. And here comes a librarian who will walk you through the software that will format your citations and bibliography to conform to the journal's style.

Your article has been accepted—and published! You know you should submit it to PubMed Central, the free online archive of biomedical and life science journals operated by the NIH's National Center for Biotechnology Information in the National Library of Medicine. But you're busy. And you've spent enough time on that article. No problem: a librarian from the medical library will submit it for you.

These are a few of the services provided by librarians at the Cushing/Whitney Medical Library—the new Publishing Support page on the library website describes all that they do.

Services include classes on using the library, links to online style manuals and help choosing bibliographic software. The Publishing Support page lists liaison librarians, who are specialists assigned to each department and research center to provide guidance to researchers in their area.

Other support services include information on a given journal's impact factor, which is based on how often articles are cited in journals. Other information on the support site includes instructions for formatting papers; information on copyright issues; lists of library classes; and online tutorials on topics including scholarly publishing and using Ovid MEDLINE.

The new page, said Reference Librarian Lynn H. Sette, M.L.S., "is a natural extension of the kinds of things we have always done for people. Publishing and the library go hand in hand."

The page can be accessed from the Cushing/Whitney home page or at <http://www.med.yale.edu/library/publishing.html>.

—Cathy Shufro

*In Circulation* focuses on activities at the Cushing/Whitney Medical Library. Send suggestions to Cathy Shufro at [cathy.shufro@yale.edu](mailto:cathy.shufro@yale.edu).





ROBERT FINE

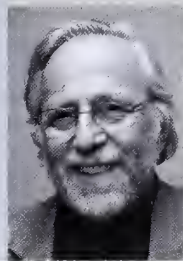
### A third party to speak for the terminally ill

Doctors and nurses in cases involving medically futile treatment often clash with a patient's loved ones over whether to continue that treatment. An extrajudicial process, however, allows both sides to appeal to a committee of physicians, nurses, community representatives and other caregivers, a medical ethicist told an audience at pediatric grand rounds in September.

The Texas Advanced Directives Act of 1999, the first statewide attempt to resolve such disputes, has created "a legal safe harbor," said Robert L. Fine, M.D., director of the Office of Clinical Ethics at Baylor Health Care System. When a case is deemed futile, it may go before the ethics committee, which does not always agree with the medical team. If the committee agrees with the medical team, treatment may be withdrawn unless an alternative health care provider is found within 10 days.

Most cases are settled within the 10-day process. "In many cases the family is relieved," said Fine, who helped write the Texas law. "They didn't let go. It lifted the burden." Doctors are relieved, too. "Sometimes the highest level of care is to withdraw medically inappropriate treatment."

—John Dillon



GERALD FRIEDLAND

### TB, an Atlanta lawyer and 52 South African patients

At first glance a diagnosis of tuberculosis seems to be all that unites Andrew Speaker, an Atlanta lawyer, with 52 impoverished South Africans who died of drug-resistant TB in a remote rural area in 2005. The cases "couldn't appear more different on the surface," said Gerald Friedland, M.D., professor of medicine and epidemiology at Yale, at internal medicine grand rounds in August.

Speaker made headlines last spring after being diagnosed with extensively drug-resistant tuberculosis (XDR-TB) and then putting fellow airline passengers at risk by traveling on seven separate commercial flights. He later received treatment at a top-rated TB hospital. Most of the rural South Africans, on the other hand, had all died by the time laboratory testing revealed the diagnosis of XDR-TB, said Friedland, who reported the cases in *The Lancet* in 2006.

Friedland said both Speaker and the South Africans suffered from the slowness of TB diagnostic tests and limited treatment options for drug-resistant TB. Friedland says the presence of growing numbers of cases with XDR-TB underlines the longstanding neglect of TB and the more recent rise of TB and HIV coinfection. "If there's a silver lining," he said, "it's that the world attention focused on both of these cases has been a wake-up call for the need for resources to promote scientific advances and improved care for TB."

—Cathy Shufro



JAMES MONGAN

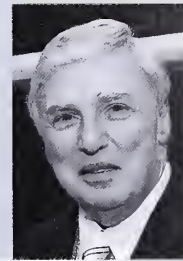
### Seeking a national solution to health care for all

Medicine is witnessing the best and worst of times because of the "staggering difference" between lifesaving advances and the "very broken" economics of health care delivery, said James J. Mongan, M.D., president and CEO of Boston-based Partners HealthCare System, during a talk at the medical school in September.

Mongan, who delivered the 11th annual Samuel O. Thier Lecture in Health Policy, said that the landscape of health care finance has shifted from one dominated by government programs to a regulatory/free-market hybrid that includes Medicare, Medicaid and managed care. Attempts to broaden coverage through employer mandates have failed because of a "tenacious desire for autonomy" in the private sector—businesses have exploited "our national ambivalence about heavy-handed government regulations" and taxation.

Meanwhile, 45 million uninsured Americans get emergency room treatment when they are sick instead of preventive care. Ignoring the cost of this tendency is dangerous, Mongan warned. While Massachusetts has a "promising" if flawed system to insure its residents, providing health care for all citizens "will demand some national action," Mongan said, though he wasn't optimistic that such action could be taken in the heat of a presidential campaign. "We currently stand as a nation without a good answer."

—J.D.



ANDREW VON ESCHENBACH

### Speeding the pace of biomarker discovery

Biomarkers that identify cancer in its early and more treatable stages have emerged as the newest tools in its prevention, diagnosis and treatment. But according to Andrew C. von Eschenbach, M.D., commissioner of the Food and Drug Administration (FDA), a urologic surgeon and oncologist as well as a cancer survivor himself, more effective collaboration among scientists and between the public and private sectors is needed to hasten the discovery of these molecular or cellular indicators of disease states.

"We have enormous talent but we haven't brought it together," von Eschenbach said in October at "Discovery to Delivery: A Public Forum About the Future of Cancer Research," a colloquium sponsored by Yale Cancer Center, Yale-New Haven Hospital and Friends of Cancer Research. "We have superstars, but not a superstar team."

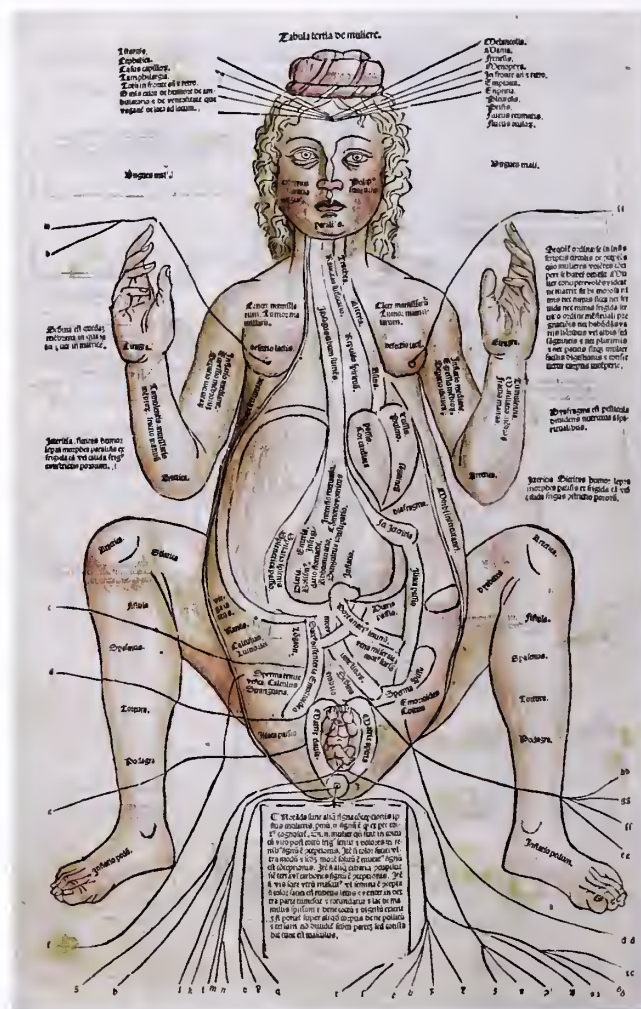
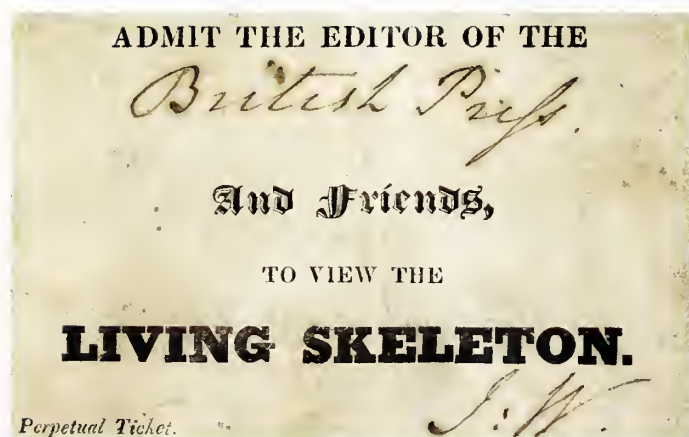
To bring researchers together, the FDA has joined the Foundation for the National Institutes of Health, the National Institutes of Health and the Pharmaceutical Research and Manufacturers of America to launch the Biomarkers Consortium. This public-private biomedical research partnership will make its findings on newly discovered biomarkers available to scientists worldwide.

—Jennifer Kaylin

## Preserving a rich trove of texts and artifacts

A preservation librarian conserves and preserves books and objects from medicine's earliest days.

By Cathy Shufro



**CLOCKWISE FROM ABOVE LEFT** Claude Seurat, whose physique was excessively bony, was exhibited at freak shows as the Living Skeleton in London in 1825.

*Figure of a pregnant woman*, a woodcut with hand color, is from *Fasciculus Medicinae*, one of the first printed medical books with anatomical illustrations. This collection of medical treatises was published in Venice in 1491.

*A lesson in dissection*, also a woodcut with hand color, comes from *Fascicolo di Medicina*, a 1493 Italian translation of *Fasciculus Medicinae* from the original Latin.



The *Catoptrum Microcosmicum* resembles a child's flap book, in which you lift a flap showing a beach ball to discover a kitten. But this book, nearly 400 years old, is a multilayered map of the human body. Raise the skull flap to see the brain beneath the bone. Turn aside the belly flap to reveal the intestines. Some pages have up to 15 layers of anatomical structures—detailed engravings made from copper plates.

This 1613 version of the rare and precious anatomy text by German physician Johann Remmelin is among the treasures in the locked stacks of the Medical Historical Library. The collection includes handwritten manuscripts, among them the *Paneth Codex*, an early 14th-century compendium of texts. The codex includes works by Hippocrates, Galen and Avicenna. Also in the collection are 325 medical incunabula, materials produced during the infancy of printing from 1450 to 1500.

Items in the collection range from antique gynecologic instruments to 19th-century stereoscopic slides of skin ailments, with a viewer for seeing them in 3D. The collection also includes scores of public health posters in Farsi, Chinese and various Indian languages; 2,000 photographs, from daguerreotypes to modern digital images; and the Fry Collection of prints and drawings of medical and health-related subjects across five centuries.

**RIGHT** Among the tasks facing preservation librarian Sarah Burge is preserving books made of wood pulp that becomes brittle with age. She triages the books according to damage, value and their importance to the collection.

**FAR RIGHT** Burge uses a powder made of crumbled rubber erasers to clean the surfaces of the pages of *Catoptrum Microcosmicum*, a 400-year-old anatomy text.

The world-renowned historical collection comprises 130,000 books, bound manuscripts and pamphlets, along with several thousand medical and scientific instruments and weights and measures. "The Historical Library houses one of the world's finest historical medical collections, and because of its wide variety of objects, poses large challenges to preservation," said preservation librarian Sarah A. Burge, M.L.S.

Burge, hired as the first preservation librarian for the Cushing/Whitney Library in 2005, has begun a full preservation program for the collection. She devotes her time to the historic materials, which attract scholars from all over the world. Many of the rare books came from the collections of surgeon Harvey W. Cushing, M.D., physiologist John F. Fulton, M.D., and tuberculosis specialist Arnold C. Klebs, M.D.—all bibliophiles—whose donations formed the backbone of the historical library founded in 1941. "They had a real appreciation of the book as an object and the book as content," said Burge.

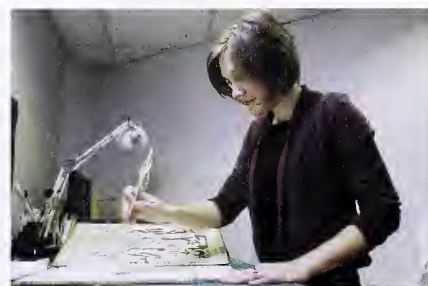
Some of Burge's challenges are technical. For instance, because the health of the books depends on the right environmental conditions, Burge is working with the medical school's heating and ventilation experts. Their dream: air temperature at 65 degrees Fahrenheit, humidity at 40 percent, no fluctuations. Other challenges are more abstract: Burge has helped draft policies to allow students and

scholars to use the collection while protecting it from damage or the kind of theft that occurred at Yale's Beinecke Rare Book and Manuscript Library in 2005, when dealer E. Forbes Smiley III stole several rare maps from the collection.

Paradoxically, many of Burge's challenges result from the rise of literacy in the 1830s, when advances in paper-making put books in the hands of ordinary people. New steam-powered machines and a scarcity of linen transformed the paper industry. For the first time, paper was made primarily from wood pulp rather than cotton or linen fibers. And wood-pulp paper doesn't last; it becomes brittle as a result of acid decay through a process known as slow fire.

"The brittle-book problem is what I'm fighting with our 19th-century materials," said Burge, who studied book preservation at the University of Illinois at Urbana-Champaign. Embrittlement can be halted by a process called deacidification, while books too fragile for public use can be digitized or microfilmed. "The historical library's long-standing mission includes the understanding that library materials will be used, and with use comes wear and tear," said Burge. "Our goal is to keep our collections safe and in useable condition through preservation and conservation measures."

Cathy Shufro is a contributing editor of *Yale Medicine*.



JOHN CURTIS (2)



# On the wards in Uganda

Story and Photographs  
by John Curtis

For Yale physicians and medical students, a few weeks at Mulago Hospital in Kampala become a life-changing experience.





In the infectious disease ward at Mulago Hospital in the Ugandan capital of Kampala, a woman in her early 20s lies on a bed with only a thin sheet to ward off the morning chill. Alone, suffering from complications from AIDS, her few possessions in a cardboard box at her bedside, she has no family to bathe her, bring her food or give her medicine. These are what doctors here call poor “blanket signs.” The mere presence—or absence—of a blanket speaks volumes.

Even before they measure the blanket signs, however, the doctors know several things about their patients. They know that as a national government-run referral hospital, Mulago receives the sickest of the sick. They know that more than half the patients in the hospital are infected with HIV. They know that two-thirds of their patients will die in the hospital or within two months of leaving it. And they know that most of their patients are too poor to afford more than the most basic tests and treatments.

Blanket signs will tell them more. The hospital provides patients with a bed. Patients must bring sheets, blankets and pillows, as well as “attendants”—family members who care for them. The doctors have learned that just having a blanket reveals much about a patient’s economic status. Of necessity, the patient’s ability to pay will drive the treatment regimen. If the patient has no resources, the doctors will prescribe only the drugs that come free from the pharmacy and order only the tests that the hospital provides at no cost.

“Medicine is not all about what you have learned in medical school,” said Robert Kalyesubula, M.D., a Mulago resident. “You prioritize. In the context of the limitations you have, what can you best do for this person? What is going to help my diagnosis best? You talk to them so they find a way to get the money, sacrifice a few things. You save the most expensive tests for last, when you really need them.”

### Making an impact on the globe

Improving patient care in New Haven as well as in Kampala is the goal of a collaboration that began in August 2006, when Majid Sadigh, M.D., associate professor of medicine, arrived at Mulago with a team of Yale residents. Since then Yale has maintained a constant presence at the hospital, with Yale residents and attendings in monthlong rotations alongside colleagues from the Faculty of Medicine at Makerere University and Uganda’s Ministry of Health. In the summer of 2007 Yale expanded its presence to include three medical students on new international fellowships (See sidebar, p. 29); a physician from Russia; two Downs Fellows; two public health students pursuing research projects; and students from the Physician Associate Program in addition to three Yale residents.

The collaboration grew out of Sadigh’s visit to Uganda in 2002 to lecture and teach about infectious disease. Why, he wondered, was the extraordinary clinical, medical and epidemiological research taking place at Makerere not finding its way literally across the street to improve care at Mulago Hospital? Yale, he felt, could help. “It is one of the best universities in the world,” he says. “It has a vision of having an impact on the globe. It has the most talented individuals.”

In the face of despair and crushing poverty Sadigh has implemented several ideas, large and small, that have made things better for people in Uganda. In the fishing village of Kasensero, the home of the earliest-known AIDS case in Uganda, Sadigh has helped patients at the local clinic and raised money to provide an education for orphans. At the nearby Holy Family Nazareth School, a boarding high school where most of the 250 students have been orphaned by AIDS, he has raised money for bunk beds and solar panels to provide lighting. And at Mulago he has kept the exchange going for more than a year with support from Yale’s Department of Internal Medicine and the Yale/Johnson & Johnson Physician Scholars in International Health program, which funds residents’ trips to Mulago.

When Sadigh first contemplated the collaboration in 2002, he and Asghar Rastegar, M.D., vice chair of medicine, had already launched a successful program between Yale and the state medical school in Kazan, Russia. Residents from both countries have traveled back and forth for clinical rotations for several years. With support from Rastegar and

**PREVIOUS PAGE** With an attendant nearby and blankets, sheets and a pillow on her bed, this patient had what doctors at Mulago Hospital call good “blanket signs.” What the patients bring with them gives doctors clues to their financial resources and helps doctors tailor their treatment plans.

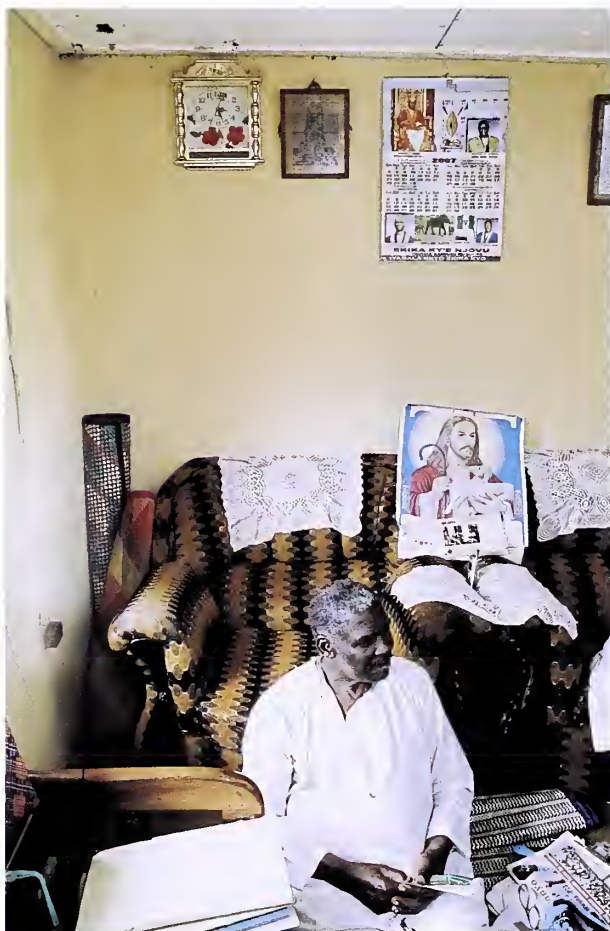




On the cardiology ward, José Evangelista, a third-year Yale resident, rounded with Caroline Bwango, a resident, and Simon Eleku, a medical registrar, or junior faculty, at Mulago Hospital last summer. Evangelista returned to New Haven with a stronger appreciation of the physical exam. "Before jumping to a test I go back to the physical exam to see if I missed anything," he said. "I don't order labs nearly as much as I used to unless there is a rationale."



In a laboratory at Mulago Hospital, technician Samson Omongot showed the Yale residents how to test for malaria in a blood sample. Throughout their time in Uganda, the residents saw diseases or stages of disease that are rare in the United States. "They are extremely good at what they do," said Yale resident Mike Lee, left, describing his Ugandan colleagues. "They can show us so many things in working with limited resources. Their knowledge of tropical medicine is amazing."



This patient, a 75-year-old mechanic with diabetes and hypertension, kept a notebook detailing his medical condition over the previous 10 years. "He needs more insulin," said Peter Ellis, an attending at Yale-New Haven Hospital, after looking over his records. "His sugars are too high." Ellis suggested a higher dose of insulin at lunch to cover the heaviest meal of the day.

David L. Coleman, M.D., HS '80, interim chair of internal medicine, Sadigh laid the groundwork for the Uganda exchange. By the summer of 2006 both sides had signed a memorandum of understanding.

Both Yale and Makerere, they believed, could benefit from an exchange that would not, in the words of Rastegar, be an exercise in "medical tourism." Yale doctors would learn more about tropical and infectious diseases, while Ugandan doctors would gain access to the latest medical standards and methods.

In practice, however, the lessons that Yale students, residents and attendings learn from their Ugandan colleagues go much deeper than improving clinical skills and acquiring knowledge. The Mulago rotations bring into question basic notions about medicine and the very concept of what it means to be a doctor. This soul-searching begins on the first encounter with the wards at Mulago.

At the 1,500-bed hospital Yale physicians have few of the tools they take for granted in the United States. Patients in Mulago are often in a hospital for the first time in their lives and little or no medical history is available. They arrive in an advanced stage of disease. The hospital pharmacy may have run out of basic medications. No one is available to take a patient downstairs for an X-ray. Test results may take days to arrive. One Yale student took to carrying a blood pressure cuff with her on rounds since none was available. During a teaching session the students wandered the wards in search of a working light box so they could look at X-rays. And it's not always clear who's in charge of a patient, making sure that tests are done and medications are administered.

"When people come here they can really feel bewildered," says Sam Luboga, M.D., deputy dean of the Faculty of Medicine at Makerere University. "They find a hospital full of patients without drugs, without supplies."

That brings them to a new appreciation of the basic skills of medicine, says Christophe K. Opio, M.D., an internist at Mulago. "You have to make a diagnosis from the little information you have," he says. "You become an investigator. You use all of your senses to identify a problem and then know what to do about a problem."

From their Mulago colleagues Yale doctors learn to rely on the most basic tools of medicine—a rigorous physical examination, whatever history can be gleaned from the patient and their own knowledge of disease. And that is





During their stay in Uganda, Yale attendings and students went on house calls on the outskirts of Kampala. Traveling with a team from St. Stephen's Hospital, a private facility in the suburb of Mpererwe, they made follow-up visits to patients. The hospital treats about 10,000 patients a year from a catchment area that includes Mpererwe and adjoining neighborhoods. Malaria accounts for more than a third of the cases at the small hospital, which operates on fees and with support from charities in the United Kingdom. Sam Luboga, the deputy dean at Makerere University's Faculty of Medicine, started the hospital about 20

years ago. Hospital administrator Charles Mugume explained the importance of the house calls. "They come, we treat, we discharge. Then we follow up," he said.

Majid Sadigh led house calls in July, accompanied by his son, Kaveh, a medical student at Tulane, and Matt Cook, who graduated in October from Yale's Physician Associate Program. The team from St. Stephen's Hospital included the hospital administrator, a midwife, a social worker and an attendant. The catchment area is not a suburb like any in the United States. Few roads are paved and the houses, often of brick or cinder block, are surrounded

by plantain trees or small pastures for grazing goats or cows.

**TOP LEFT** Sadigh tended to an 85-year-old woman with multiple problems, including hypertension and cataracts that could lead to glaucoma.

**BOTTOM LEFT** Charles Mugume, administrator of St. Stephen's Hospital, took a patient's blood pressure.

**TOP RIGHT** Peter Ellis led house calls with medical students Allison Arwady and Lily Horng. Their day started with rounds at the hospital, where they were served a typical Ugandan lunch of rice,

*matoke* (mashed plantain) and stew. At the home of a 75-year-old mechanic, Ellis reviewed the patient's medications.

**BOTTOM RIGHT** House calls often involved a search for the patient's home. Medical student Allison Arwady struck up a conversation with a patient's relative during one search.



Mulago resident Robert Kalyesubula, 31, comes from Luwero, a town about 60 kilometers north of Kampala, where he spent part of his residency. "When I practiced in my hometown I realized that there were so many patients so far from doctors," he said. His experiences during the civil war that followed the overthrow of Idi Amin led to his decision to help people by becoming a doctor. His father died in the fighting and Kalyesubula was separated from his mother. He also lost siblings to war, disease and starvation. Sponsored by a Canadian charity, Friends in the West, he was

raised in an orphanage and as a child toured the United States as a member of the African Children's Choir. Later he went to McMaster University in Canada as part of a medical exchange. "There is a lot to learn between the two of us," he said of the Makerere-Yale collaboration. "We know a lot about infectious diseases. They know a lot of modern medicine. We exchange at that level." His main lesson for Yale medical students was, "how you can actually manage patients by having a very good clinical exam."

the main lesson. "You're not a doctor if you can only function in a certain milieu," Sadigh says. "Sometimes there's just you and the patient."

### The Harvard of East Africa

Any discussion of health care problems in Uganda starts and ends with money. Uganda is a poor country; annual per capita income is about \$280. Foreign aid accounts for half the national budget revenues. The country has dismal health indicators—life expectancy, 52 years; infant mortality, 67 per 1,000 live births. The risk of bacterial diarrhea, hepatitis A, malaria and African sleeping sickness is very high.

And the country is still recovering from the turmoil that followed independence from Great Britain in 1962. Nine years later, when General Idi Amin seized power in a coup, Ugandans welcomed him as a relief from the autocratic President Milton Obote. Within a year Amin began to expel the country's Asian population—brought to Africa as civil servants by the British—who, Ugandans felt, unfairly dominated the economy. The Asians also made up a significant portion of the medical school faculty.

"I had just started medical school when Amin came to power," said Nelson Sewankambo, M.D. He is the sixth Ugandan dean of the Faculty of Medicine, a post he has held for almost a decade. "We saw the exodus of expatriate staff at the time. Ugandans and Africans also left."

As Amin targeted his enemies, real and perceived, Sewankambo said, academics "became suspect." Several doctors at the medical school were murdered, including one who was snatched from the operating room. By 1979, when neighboring Tanzania invaded Uganda over a border dispute and Amin fled to exile in Saudi Arabia, Mulago Hospital had no working X-ray machines, no running water, no refrigeration in the morgue and no sewage system. The General Medical Council of the United Kingdom no longer recognized Makerere medical degrees.

This loss of recognition was a stunning reversal for both the medical school and the university that had been known as the Harvard of East Africa. Makerere University opened in 1922 as a technical school. Over the next few years it added courses in agriculture, veterinary medicine and teacher training. In 1924 the precursor to the medical school, the School for Senior Native Medical Assistants, opened at Mulago Government Hospital. Even the school's



name reflected the colonial view that Africans were incapable of becoming doctors. By 1929, however, the school for medical assistants had become the Faculty of Medicine, graduating not assistants but fully qualified physicians. The university advanced in other areas after it affiliated with the University of London in 1949. By 1962 Makerere was East Africa's leading educational institution, producing several presidents of new African nations, including Julius Nyerere of Tanzania. In 1963, following Uganda's independence, Makerere joined with universities in neighboring Kenya and Tanzania to form the short-lived University of East Africa.

Makerere, like the rest of the country, fell on hard times during the Amin era and the civil war that followed. Fighting ended in 1986, when Yoweri Museveni's guerrilla band took power. Museveni has ruled ever since, providing stability in Uganda if not true democracy or transparency.

As peace came to the country Makerere University sought to regain its former prestige. An opportunity emerged for the Faculty of Medicine in the early 1980s on the shores of Lake Victoria, where a mysterious ailment was plaguing the fishing village of Kasensero, about 60 miles southwest of Kampala.

In 1982 people in the village began dying of a disease the locals called "slim" because of its wasting effect. The disease was AIDS but no one knows how it reached the village. HIV had made the leap from monkeys to humans years earlier in Cameroon on Africa's western coast. Some speculate that the AIDS virus crossed the continent with the construction of a trans-Africa highway. Others blame its arrival in Uganda on the invading Tanzanian army. However the virus arrived, it turned this village and its brothels into the epicenter of the Ugandan AIDS epidemic. Since then much of the leading research on AIDS in Africa has been done at Makerere.

"From the beginning the medical school has been the flagship of Makerere University. There is good research on HIV. There is groundbreaking research on malaria as well. Burkitt's lymphoma was described by a professor here," said Sewankambo, a prominent AIDS researcher. Yet problems persist. "Makerere continues to struggle in raising resources. ... The salaries are awful, for example. Laboratories are run-down. The equipment is old."

The medical faculty at Makerere has long enjoyed help from abroad. Before implementing a new problem-based cur-

riculum in medicine, faculty members visited 14 universities around the world. And international collaborations don't end there. Makerere's medical school has many foreign partners—Case Western Reserve University; Johns Hopkins University; the University of California, San Francisco; the University of Medicine and Dentistry of New Jersey; McMaster University in Canada; the University of British Columbia; the University of Dublin; and the University of London. The Yale-Makerere collaboration, however, stands apart.

"Other universities say, 'Let's collaborate on research.' Yale is interested in improving the quality of health care services and the education of physicians," says Sewankambo. "By improving education we are training health workers to provide quality services within the context of limited resources."

#### **"That is how we survive."**

In resource-poor Mulago Hospital, the Yale residents and students rotating through the wards last summer incurred a debt to their Ugandan hosts that they doubted they could repay. As they worked side by side with Ugandan colleagues their physical examination skills soared; they learned about tropical diseases; and they saw what were for them uncommon cases of advanced disease. The three medical students agreed that Mulago provided their best clinical rotation by far. But they all wondered how much they were helping Mulago Hospital in return. How could they repay the hospital for all that they were learning? If Yale residents and even attendings struggle in the absence of resources that are second nature to them, what can they teach physicians who lack those resources?

"You can always help, even when the facilities are not as good as where you are from," says Edward Ddumba, M.D., executive director of Mulago Hospital. Echoing Sadigh, he adds, "You cannot be paralyzed by different institutions. People adapt."

Ddumba has no trouble imagining where he'd spend more money if he had it. He'd like to double the number of physicians on staff from 400 to 800 and increase the nursing staff as well. Among his other goals are "to get the infrastructure repaired ... to get hospital furniture, hospital linens, improve laboratory services, improve emergency drug supplies and emergency response infrastructure using capital budget."

Most of his \$15.6 million annual budget comes from the Ugandan government. Private wards on the sixth floor

generate additional income and the hospital also relies on international donations of supplies, money and drugs. "That is how we survive," Ddumba says.

Sadigh believes Yale doctors also provide a significant contribution to the hospital. In the first year of the program, said Sadigh, Yale residents provided 90 weeks of coverage at the hospital and attendings provided 60 weeks. They set an example by modeling different attitudes and ways of practicing medicine and interacting with patients. "If we have any impact on Mulago, we have an impact on the whole country," Sadigh says, "because Mulago is setting the standard for care and education for the country."

Among the tangible benefits are the medical supplies that Yale visitors bring from Recovered Medical Equipment for the Developing World (REMEDY), a Yale-based organization that salvages surgical supplies and other unused materials that can't be used in the United States. The visitors also bring journals and textbooks. From his office at Yale, librarian Mark Gentry has made online medical resources and textbooks available to Makerere students and faculty in Kampala.

"Through this program we have been able to get a lot of reading materials, which I think makes us better able to look up issues and treat our patients," said Mulago resident Fred Semitala, M.D., a graduate of Makerere. Semitala would like to see more Ugandans train at Yale. So far, three have traveled to New Haven. "If we train a hematologist or a nephrologist, then that person is going to train five or more," he says, adding a caveat. "Training without the facilities to use doesn't help. A cardiologist couldn't do a better diagnosis if he doesn't have EKG."

Ali Moses, one of three Ugandan trainees to come to Connecticut, spent four months at Waterbury Hospital and Yale-New Haven Hospital learning about evidence-based medicine, diagnostic skills and patient management protocols. "The Yale elective provides an opportunity to appreciate the practice of 'ideal' clinical medicine, which can be used as a standard or benchmark for and basis for improvement in general clinical care," he said in an e-mail from Kampala.

Other benefits are intangible yet no less important. A Yale second-year resident, Michael X. Lee, M.D., who was in Uganda last summer, tried to introduce evidence-based medicine while on the wards. Evidence-based medicine, a concept that emerged more than 25 years ago, applies the

latest and best evidence to make medical decisions. "A lot of things are practiced because that is the way it has been practiced for years," Lee said. "I try to ask the Ugandan residents, 'What is the evidence for what you just said?'"

"I think where we can really help is in role modeling," said José Evangelista, M.D., a third-year resident who was at Mulago last summer. "It is my role to help by teaching."

All the visitors at times felt overwhelmed by the hospital.

"You are frustrated on so many levels," said Samit Joshi, M.D., a third-year resident. "At a system level you wish the hospital had more free services and more basic tests or better nursing care or better doctor care. At a public health level you wish there were enough prevention campaigns so that people don't come in with HIV or malaria or schistosomiasis."

"It is easy to walk into a situation and be overwhelmed. There is also a different way of looking at it," said Lee. "They save a lot of lives in Mulago. They have treated many people successfully. We have a lot of respect for the people that work here."

### Life at the Edge

If the Mulago experience caused the residents and students to question what it means to be a doctor, the living arrangements altered the traditional hierarchy of students, residents and attendings. Residents and attendings don't usually share bedrooms and bathrooms or see each other in shorts and T-shirts every evening. Nor do residents typically see an attending ironing his shirt in the morning. The Mulago setting also made for a round-the-clock learning experience—the talk around the house was usually about medicine.

Home for the Yale team was the Edge Guest House on the 300-acre campus of Makerere University. The walled university, sitting on a hill of the same name, is a haven of calm against the bustle of Kampala, where the air fills with the exhaust of countless *matatus*—minivans that provide public transport—motorcycles and taxis. And the Edge, a complex that includes a six-bedroom house and two smaller outbuildings enclosed inside a wall, provides further insulation from the city.

In the house was a revolving cast of characters that included Sadigh, four residents, two public health students, a physician associate student, a resident from Columbia University, a resident from New York University, and Sadigh's son, Kaveh, a medical student at Tulane University. A few





One of the goals of the collaboration is to offer Yale attendings, residents and medical students a chance to understand not just Ugandan health care, but also the country's culture and politics. One field trip took medical students to the Patiko-Ajulu Internally Displaced Persons Camp near Gulu in northern Uganda near the Sudanese border. This camp houses about 10,000 people forced to leave their homes by the Lord's Resistance Army, a rebel group that opposes the Ugandan government and is known for kidnapping children to serve as soldiers.

**ABOVE LEFT** Children wandered about the Patiko-Ajulu camp on a weekend in July.

**LEFT** A young woman of 17, a day after giving birth to her son in the camp's clinic.

**ABOVE** The Yale group also visited Kasensero, a fishing village on Lake Victoria, and the epicenter of Uganda's AIDS epidemic. At the local clinic, which has received some support from Yale faculty, villagers offered songs and dances in honor of their foreign visitors.

blocks away most of the team's female contingent—five medical students—shared an on-campus apartment.

Mornings at the Edge began around seven o'clock as residents and students prepared hot water for tea and ate breakfast—avocado sandwiches were one resident's favorite—before heading for Mulago Hospital. The 25-minute walk took the residents and students through the green lawns and crumbling sidewalks of the university to the eastern gate on busy Bombo Road. Traffic lights are almost nonexistent in Kampala. Traffic circles called roundabouts control the flow of vehicles at intersections. Frequent speed bumps on busy roads slow down traffic enough for pedestrians to scurry across.

From Bombo Road the path to Mulago follows a dirt track into a shantytown called Katanga. Although Katanga is safe during the day, the Yale team is advised to avoid the

slum after dark. The path descends into the Katanga valley, past a soccer field, past grazing cows and goats, past a small brick factory, up the dirt track and across another busy thoroughfare to the back entrance of Mulago Hospital.

At the hospital residents and students started the day with morning report. "We find out how the patient is doing. Together we come up with a management plan for the day for the patient. Interspersed with that is the opportunity to do peer teaching," said Lee.

During one day's rounds through the infectious disease ward, Joshi worked with Patrick Komakech, M.D., a Mulago intern, and Rasikh Tuktamysvov, M.D., from Kazan, Russia, who was in Uganda at Sadigh's invitation. Joining the team was Rachel Smith, a fourth-year medical student from the University of California, San Francisco.

The patients included a woman who looked to be a teenager but was 24. She lay on a bed covered only by a sheet, with no attendants to look after her. HIV-positive and anemic, she had been vomiting. The next patient was a 40-year-old woman complaining of vomiting, fever and headache. The differential diagnosis suggested malaria and the doctors administered quinine through an IV. Another patient had good blanket signs—a suitcase for her belongings and an attendant sitting at her bedside with a cup of tea. The patient's diagnosis was cryptococcal meningitis, a common infection in patients with low CD4 counts.

Among the day's patients was a 20-year-old woman with AIDS who had been abandoned by her husband. He had made it clear to the hospital that he didn't want her back. Although she was not sick enough to remain in the hospital, she was too sick to be on her own. A social worker intervened and the husband took her back.

By noon, rounds are usually over and the medical teams break for lunch in the hospital canteen on the second floor. Lunch can be snacks—small pizzas or fried meat pies—or a buffet that offers a heaping plate of rice, sweet potatoes and *matoke* (mashed plantain) covered by a bean, beef or goat stew.

After lunch the residents may perform tasks that usually fall to nurses in the United States, such as drawing blood for tests or removing fluid from patients' abdomens. On-call days are the same, except that between 4 and 5 p.m. they go to the casualty ward and evaluate new patients, determine the primary problem, and triage them to such different services as gastroenterology, infectious diseases, renal, pulmonary, cardiology or neurology.

Two or three evenings a week, Sadigh set up two laptops in the living room of the Edge Guest House for his talks on infectious diseases. He also arranged for classes in Luganda, one of the country's principal languages, talks on Ugandan history by a political scientist and weekend trips to sites of historical and cultural significance.

### A transforming experience

Their experiences in Uganda have already had an effect on the doctors and students. For the students, it has confirmed or altered their career choices—all three medical students have chosen to specialize in internal medicine—and their sense of what is important to learn. And residents find themselves taking a different approach to medicine.

"I think my physical exam skills went through the roof," said Joshi, the third-year resident, a few weeks after his return to Connecticut. "My ordering of tests has probably gone down by 40 percent. If I get this test, X-ray or CT scan—which is hard to come by in Mulago—is it going to give me some new insight that I can't get by putting my stethoscope on the patient's chest?"

And it's not just students and residents starting out in their careers who are affected by the experience. "What does it really mean to be an effective clinician?" asked Merceditas Villanueva, M.D., an infectious disease specialist at Yale-affiliated Waterbury Hospital who spent three weeks at Mulago. In October she addressed a reception to open an exhibit of photographs and essays about Uganda. "From where does a clinician's power ultimately derive? Clearly, we rely on our technical expertise, our knowledge of pathophysiology, our ability to use evidence to make diagnoses and formulate treatment plans. ... But beyond this, I believe our power derives from our ability to listen, examine carefully, synthesize data and draw on our previous experiences."

For Sadigh it's not enough that Yale students, residents and attendings learn how to practice medicine with limited resources. He also wants to purge them of prejudices or paternalism. "We shouldn't be making judgments about a community that is overwhelmed at every level," he says. He expects that the young Yale doctors will learn from the experience, and he acknowledges the difficulties they face—linguistic and cultural barriers as well as patients who have no money for medicines or no one to fetch them a glass of water.

"It is a kind of shock therapy," says Mulago's Opio. "Most people do not know what happens in the developing world. ... Many of them are going to become great people in their lifetimes, but I think their experience here will make them better people."

That is also the hope that drives Sadigh.

"At the end of the trip they will be different people," he says. "I can't measure that, but I think they will be different people. ... If they become better people, in the future I think Uganda is going to gain a lot from this. That is a long-term investment."

John Curtis is the managing editor of *Yale Medicine*.



## Uganda clerkships inaugurate a new foreign electives program

After six weeks in Uganda last summer, fourth-year medical students Allison Arwady, Lily Horng and Rachel Laff said the clinical rotation at Mulago Hospital was the best they'd had in medical school. The three were the first students to travel abroad with support from three new fellowships endowed by alumni donations. The fellowships marked the beginning of an ambitious program to support international clerkships for students.

"This is different from anything that has ever happened before," said Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, associate dean for student affairs. Students have long traveled abroad for clerkships,

but at their own expense. For the first time, the medical school is offering financial support. Angoff believes the experience in a foreign hospital will have a lasting and positive influence on the students' development as doctors.

Arwady, Horng and Laff joined an existing medical exchange led by Majid Sadigh, M.D., associate professor of medicine. This was the first time that the exchange, which has brought Yale residents to Uganda since the summer of 2006, hosted medical students.

"It was hard," said Arwady, who had previously been in South Africa and Botswana, working on projects as a medical student. "It was also one of the most intense and thought-provoking experiences I have had in years.

You are out of your comfort zone in every way."

"I learned a lot, thanks to the residents and most of all to Dr. Sadigh," said Laff, who had previously spent three months in Gabon. She said her time in Uganda reinforced her decision to pursue internal medicine. "I want that broad training," she said.

"It was the best rotation I've had, hands down," said Horng, who had previously traveled to China and Chile.

On Mulago's wards they saw the limitations of medicine in a developing country and marveled at the skills and knowledge of their Ugandan colleagues. They came away with a heightened appreciation of the importance of the physical exam, which they saw their Ugandan and Yale colleagues relying on for diagnoses. "It's something that we don't do that well here," said Arwady.

Also in Uganda was Matthew S. Cook, PA '07, then in his final year of the Physician Associate Program, which provided partial support for his rotation. Like the medical students, he said his experience in Uganda left a lasting impression. "I definitely have a commitment to do medicine overseas," he said. Cook began a two-week rotation on the Community Health Care Van on his return to New Haven. Coming on the heels of his Uganda clerkship, the van rotation made him more aware of health disparities in this country. "The health care system is broken and flawed. The problems are so widespread there is no easy fix," said Cook, who is now on the hospitalist service at Yale-New Haven Hospital.

Robert M. Rohrbaugh, M.D., associate professor of psychiatry, and administrator for the clinical elective program that has brought foreign students to Yale for electives, said the success of the Ugandan program bodes well for future foreign electives.

"Despite the difficulties that everyone that goes there encounters, it was confirmatory for them that this is what they want to do," he said.

Foreign electives will be open to students who have completed their third year. In addition to the six-week clerkships, students can apply for the year-long Yale-China Medical English Fellows Program. Nancy Chapman, executive director of the Yale-China Association, said the fellows going to China would teach medical English and study Mandarin, the official modern spoken language of China. They would also have clinical and research opportunities. The association will pay travel expenses and provide a stipend and housing at the Xiangya School of Medicine in Changsha, Hunan.

Wherever they go, students would be expected to learn about the host country and learn something of the language. "They have to be prepared," Angoff said. "They will also have an opportunity to debrief afterwards, as these experiences can be emotionally charged."

Rohrbaugh said students will benefit in several ways. "They'll be able to practice what they've learned at Yale in different settings. They'll be seeing patients with different presentations of illness. They'll develop an awareness of the social and political factors in health and disease," he said. "There is a basic cultural competency that you learn."

—John Curtis



podcast

A podcast of Robert Rohrbaugh speaking on this subject can be found on the Yale page on iTunes U. Visit [itunes.yale.edu](http://itunes.yale.edu) or launch iTunes, then select Yale from the offerings under iTunes U. The podcast is included under "Yale Health and Medicine."







By Colleen Shaddox and Michael Fitzsosa  
Photography by Frank Poole

# A tale of two doctors

First as student and teacher, then as colleagues, and now as co-authors, a cardiothoracic surgeon and a cardiologist have worked side by side at Yale for 30 years. John Elefteriades, head of cardiothoracic surgery, and Lawrence Cohen, the former special assistant to the dean, recently published *Your Heart: An Owner's Guide*, which explains cardiac problems and how to treat them.

## John Elefteriades

The walls of his office are lined with a variety of “Best Doctor” magazine covers and plaques from professional societies. But John A. Elefteriades, M.D. ’76, HS ’81, FW ’83, directs visitors’ attention only to the framed pages closest to his desk. They are thank-you letters and drawings from patients, famous and less well-known, whom he has saved in the operating room. Congratulate Elefteriades on one of his latest accolades, being named the William W.L. Glenn Professor of Cardiothoracic Surgery in 2006, and he’ll smile slightly and call the appointment “some kind of clerical error.”

Cardiologist Lawrence S. Cohen, M.D., HS ’65, the Ebenezer K. Hunt Professor of Medicine and a longtime mentor and collaborator, sets the record straight. Glenn, who died in 2003, was a pioneering surgeon, head of the cardiothoracic section for decades, and one of Elefteriades’ teachers. “He was very proud of John and hoped that after

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## Lawrence Cohen

When Jeffrey R. Bender, M.D., HS ’83, met Lawrence S. Cohen, M.D., HS ’65, in the early 1980s, Bender was a resident in internal medicine and Cohen introduced Yale medical students and residents to cardiology. Deliberate, concise and impeccably dressed in a blazer, collared shirt and cuff links, never a crease out of place, Cohen was one of those professors whom students honor with a nickname.

“He was known as ‘Larry the Heart,’ ” recalls Bender, now the Robert I. Levy Professor of Preventive Cardiology and professor of medicine and immunobiology, “and he was the consummate teacher.”

At 74, Cohen, the Ebenezer K. Hunt Professor of Medicine, is still the expert from whom every Yale medical student learns how to listen for and interpret heart sounds. He estimates that he’s taught some 3,000 students over the past 35 years. But that facet of his academic life represents just a fraction of his contributions to Yale, to medicine

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John Elefteriades, left, and Lawrence Cohen, have a lot in common. Both are renowned in their fields, cardiothoracic surgery and cardiology. Both have conducted groundbreaking research. And both are known as consummate teachers.

# Elefteriades

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the chair was established that John Elefteriades would be its first incumbent," Cohen said.

Elefteriades has done groundbreaking research on aortic aneurysms—weakened areas in the wall of the heart's main artery—and is sought out by millionaires and royalty for his surgical skills. But Cohen says patients are just as often moved by "his gentleness." Patients like Carmela Kolman.

Kolman was 32, an artist who knew that she had an aortic aneurysm and that it meant surgery at some point in her future. The future came crashing down on her, however, one Saturday morning in 1993 when the three layers of tissue comprising her aorta were forced apart by the pressure of the blood inside the vessel and the aneurysm dissected. She crawled to the telephone and whispered to the 911 operator, "Pain. In my chest."

Elefteriades repaired her aorta and became a "calm, reassuring presence" in the weeks that followed, both for Kolman and her husband, John A. Rizzo, PH.D., a health economist then on the faculty of the Department of Epidemiology and Public Health. Together Rizzo and Elefteriades embarked on a course of research that continues to improve care for patients like Kolman.

Despite the danger of aortic aneurysms, physicians balk at performing open-heart surgery unless the aneurysm is at immediate risk of dissecting or bursting. But if the aneurysm does dissect or burst, mortality skyrockets. The key is determining the right moment to operate. There were few tools to predict when an aneurysm would reach a crisis stage until Elefteriades and Rizzo developed the largest aortic aneurysm database in the world, with 3,000 cases. In the past 15 years, their research has identified the risk factors that put patients with aneurysms in imminent danger.

Rizzo, now at the State University of New York at Stony Brook, jokes that Elefteriades is "the only person I've ever worked with for an extended period of time who has never lost patience with me." But he goes on to say that Elefteriades never loses patience, period. When the data are perplexing or a journal imposes an impossible deadline, Elefteriades maintains perfect composure, Rizzo says, and the calm is contagious. "That's what I call a leader," he adds.

Elefteriades also collaborates with the Celera Group, the private firm that engaged in a scientific race with the government's Human Genome Project. Together they've identified genetic alterations associated with aneurysms

and, by examining a patient's RNA, can predict whether a patient will develop an aneurysm. (Their findings were published in the October 17 issue of *PLOS ONE*.) The test is 85 percent specific and close to 100 percent accurate, meaning that positive results accurately predict the development of aneurysms while about 15 percent of the patients on track for an aneurysm will test negative. DNA analysis that could complement the RNA findings is under way, and Elefteriades hopes the test will be widely used in high-risk patients.

His research has also taken him into the twilight zone where patients hover on life's threshold. To operate on the aortic arch—the area usually clamped off when a patient is put on a heart-lung machine—blood circulation is suspended by inducing hypothermia. When a patient's body cools to 18 degrees Celsius (about 64.4 degrees Fahrenheit) and the metabolic rate slows to 12.5 percent of normal, Elefteriades has 30 to 60 minutes to repair an aneurysm on the aortic arch. His patients have neither blood pressure nor pulse; they are "for all intents and purposes, dead," says Elefteriades. They awake with no apparent loss of memory or cognitive function.

"I've done [the operation] probably as much as anyone has done it," says Elefteriades. "And I don't understand it. I'm awed by it."

He wants to know why these patients thrive after a brush with death. He has an undergraduate interviewing 75 patients and their spouses in search of "subtle aberrations" in the patient's behavior after the surgery. The patients selected for the study have varied but mentally demanding occupations: there are lawyers, doctors, artists and financial analysts in the sample. The study found no decline whatsoever in their functional state after deep hypothermic arrest, Elefteriades said.

Elefteriades continues to publish on the health risks of an exercise he enjoys himself, weight lifting. He has seen patterns in sudden deaths among high school and college athletes who lift weights, an exercise Elefteriades first took up as a high school wrestler. He reviewed cases of 31 young men who had died when their undetected aortic aneurysms dissected. He is recommending echocardiograms for all weight lifters to screen for aneurysms. Elefteriades acknowledges that the recommendation drives up health care spending but says, "I don't know any other way to keep these kids safe."



**“The operating room is like a drug. If I’m away for a week I feel like I haven’t contributed to humanity.”**

His research tends to spring from clinical questions, so in a sense the surgeon’s own heart never quite leaves the operating room. “The operating room is like a drug,” he says. “If I’m away for a week, I feel I haven’t contributed to humanity.”

Ironically, the career that inspires such passion in him was the result of happenstance.

A top student and serious wrestler on the high school team in Lansdowne, Penn., Elefteriades had been accepted to the Massachusetts Institute of Technology. He was planning to be an engineer, much to the pride and delight of his immigrant parents, who had not gone to college themselves. One day a Yale recruiter walked into his classroom and declared, “Young man, you’re going to Yale.”

Elefteriades says he does not know what piqued the recruiter’s interest—perhaps a chat beforehand with the friendly principal. Whatever the reason, he is grateful that fate steered him to New Haven.

At Yale, his horizons widened. “I think it’s the best place to go to college that there is,” Elefteriades remembers. Yale allowed him to follow his varied interests: French literature, physics, psychology. It wasn’t fashionable to have a career path in mind in the early seventies, he recalls. So he began taking exams for various graduate and professional programs. He ended up in medical school because the MCATs were the first set of results he got back.

He explains his choice of surgery as motivated by “a love of the beauty of the body, and the body really is beautiful—internally, externally.” He remembers the world of cardiothoracic surgery in the 1970s being relatively new and full of challenges. While much of his work involves expanding the discipline’s knowledge base, he is equally satisfied performing bypass surgery, though he’s done the procedure thousands of times. “Each case is a little different. Every blood vessel is a little different,” he says.

In addition to his scholarly work, Elefteriades writes for the lay public, a pursuit he finds “relaxing.” He co-authored *Your Heart: An Owner’s Guide* with Cohen, a work that explains cardiac problems and their treatment. Both writers said the book is in part a response to the time pressure exerted by health management organizations that frequently robs patients and families of the chance to ask detailed questions of their physicians. A second book, *The Woman’s Heart: An Owner’s Guide*, is in press. Elefteriades,

who co-authored the book with Teresa L. Caulin-Glaser, M.D., HS ’91, FW ’95, a clinical associate professor of internal medicine at Ohio State University, hastens to explain that he’s demystifying the female heart from a medical perspective, not a poetic one. “If I could understand the woman’s heart, that would be great,” he says. “I think women are much more complex and interesting than men—emotionally and in nearly every other way.” He also has a book on cardiac fitness in the pipeline and another of patient stories, titled *Extraordinary Hearts*.

He attributes his productivity to a “phenomenal” support staff and a changing corps of students and residents who do much of the heavy lifting in his research. “My role as a mentor is to identify a topic that is an important open question,” says Elefteriades, and then to offer guidance on how to write a scientific paper. He finds that students “usually exceed any expectations I could have for them.”

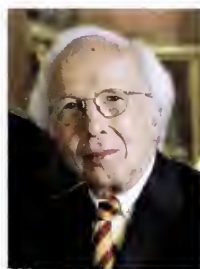
Elefteriades received the Socrates Award for Excellence in teaching and mentoring of residents from the Society of Thoracic Surgeons in 2006. He calls his impact as a teacher his proudest achievement and points to the former Yale residents who are now directing cardiac centers.

It is especially gratifying to bring a medical student into the operating room for the first time and hear, “This is the greatest day of my life!” That was how Elefteriades felt his first day in surgery. The feeling has lingered.

Colleen Shaddox is a freelance writer in Hamden, Conn.

# Cohen

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and to the advancement of cardiac care during a career that began with his graduation from New York University Medical School in 1958.

It's advancement of patient care that fills Cohen with satisfaction and even a sense of wonder when he thinks back to the early days of his academic career. "The number one difference between then and now is that someone practicing now has the tools to prevent heart disease," he says. That we have this armamentarium at all is in part thanks to Cohen. The Brooklyn-born cardiologist was a key player in the major studies that established the efficacy of clot-busting medications to stop heart attacks and slow the hardening and clogging of the arteries that usually precipitate coronary disease. Cohen was the principal investigator at Yale of a series of multicenter trials of thrombolytic drugs, including streptokinase and tissue plasminogen activator, or t-PA. These drugs dissolve blood clots by harnessing an enzyme called plasmin to break down fibrin, the protein that helps platelets bind to form a clot. These early Thrombolysis in Myocardial Infarction (TIMI) trials in the late 1980s proved that thrombolytics would help patients who were experiencing an acute myocardial infarction, an interruption of blood flow to the heart muscle. Since the mid-1970s, Cohen has overseen some two dozen trials of heart disease treatments, some of them ongoing.

Because of his wide experience and calm, effective approach to decision making, Cohen's advice has been sought for years. Students, residents, fellows, colleagues in cardiology and deans trust his judgment, and not only about medicine. In 1991, then-Dean Leon Rosenberg, M.D., HS '63, asked him to serve as his deputy dean. Cohen continued in that role under Robert Donaldson, M.D., and Gerard Burrow, M.D. '58, HS '66. For the past 10 years he has been the special advisor to three deans, David A. Kessler, M.D., Interim Dean Dennis D. Spencer, M.D., HS '77, and current Dean Robert J. Alpern, M.D., Ensign Professor of Medicine. Cohen's focus has ranged from overseeing faculty appointments and promotions to raising money for endowed professorships to investigating scientific misconduct and fraud. Of the latter, Cohen says, "It doesn't happen very often, but when it does the university takes it very seriously."

With his colleague Merle Waxman, M.A., the medical school's ombudsperson, Cohen took a preventive approach to research misconduct. They developed a seminar series

titled "The Responsible Conduct of Research," which has been presented to more than 1,000 postdoctoral fellows, graduate students and faculty since 1996. Most allegations, Cohen believes, can be avoided by taking a few precautions, and he advises faculty to be open and communicative about their research from the earliest stages of a project. Meticulous and transparent data recording, frequent meetings with collaborators and familiarity with all aspects of a project, not just one's own part in it, he says, are the keys to avoiding problems down the road.

After 16 years, Cohen stepped down from his role as the dean's advisor last July, but he is continuing as a full-time faculty member and practicing cardiologist. "I'm not retiring," he told colleagues and acquaintances in the weeks leading up to a May 1 reception in his honor in the Medical Historical Library. As word of the reception spread, Cohen found himself explaining again and again that he was not leaving Yale.

"I hear you're retiring," Don McNulty, a maintenance worker that Cohen has known for 30 years, said a few days before the ceremony, which was attended by more than 100 colleagues, family members and friends, including Yale President Richard C. Levin and Yale-New Haven Hospital CEO Marna P. Borgstrom, M.P.H. '79.

"I'm not retiring," Cohen said for the umpteenth time, his face betraying not a hint of impatience. "I'm just leaving the dean's office. I will still be here."

That's good news for the medical school, says longtime collaborator John A. Eleftheriades, M.D. '76, HS '81, FW '83, the section chief and William W.L. Glenn Professor of Cardiothoracic Surgery. Eleftheriades, who learned from Cohen to listen to the heart as a medical student, calls his mentor "the cardiologists' cardiologist."

"When any of us is ill, we go to him," he says of Cohen. "Both my parents see him. Whenever there's a tremendously difficult or complex case that requires exceptional judgment, cardiologists from all over the region will send their patients to him."

In 2007 Eleftheriades and Cohen published their second book together, *Your Heart: An Owner's Guide* (Prometheus Books), with a foreword by artificial heart inventor Robert Jarvik, M.D. It is Cohen's fourth book—he has also published 34 book chapters and 136 papers.



**“He doesn’t go through the motions, but focuses entirely on each patient and he finds things that other doctors don’t find.”**

Cohen is married to Jane A. Cohen, M.S.W., a psychiatric social worker in private practice, and has two daughters and four grandchildren. He grew up in the Flatbush section of Brooklyn, N.Y., the youngest of three children. His grandparents were emigrants from Poland and Russia; his father owned a chain of men’s clothing stores. Cohen attended Midwood High School in Brooklyn and then Harvard College, graduating in 1954 with a degree in social psychology. After medical school at NYU, he came to Yale in 1958 as an intern in medicine and stayed for a second year as a resident before joining the U.S. Public Health Service as a research fellow in infectious diseases. After two years as a research fellow in cardiology at the Peter Bent Brigham Hospital in Boston, he returned to Yale as a senior resident in 1964-65.

His mentors were Paul B. Beeson, M.D.; Eugene Braunwald, M.D.; and Donald W. Seldin, M.D. ’43, HS ’46. Cohen remembers Beeson, a legendary chair of medicine at Yale who conducted research on fever and discovered the class of signaling molecules called cytokines, as “a quiet, charismatic man who led by making you want to do your very best.

“You never wanted to disappoint Paul Beeson. He really cared about the care of the patient and would sit down on the bed and talk directly to the patient, which was very unusual in that day,” Cohen says. Braunwald, author of the leading cardiology text, *Heart Disease*, and chair of the TIMI Study Group at Brigham and Women’s Hospital, recruited Cohen to the cardiology branch of the National Heart Institute, where Cohen served as chief of the clinical service. He would go on to work with Braunwald on the first three TIMI studies, which proved that heart attacks are caused by the rupture of plaque from the wall of an artery, followed by clotting.

“It was the clot that stopped the blood flow and caused the death of heart muscle,” says Cohen. “TIMI proved that if you could dissolve the clot in a timely fashion and thereby re-establish blood flow to the heart muscle, you could limit or prevent the effects of a heart attack completely.”

Seldin, who left a comfortable teaching post at Yale to build a research powerhouse at the University of Texas Southwestern Medical School, recruited Cohen to Dallas. After two years, Cohen was lured back to Yale in 1970 as chief of cardiology.

Trained by giants in medicine, Cohen has himself mentored dozens of influential cardiologists and leaders in academic medicine, including Kim A. Eagle, M.D., HS ’83, director

of the Cardiovascular Center at the University of Michigan; and John M. Lasala, M.D., PH.D., FW ’90, director of interventional cardiology at Washington University in St. Louis.

Lasala, who came to Yale as a cardiology fellow in 1986, remembers being impressed by Cohen’s ability to find the most salient and critical details in a mass of complex information. “He obviously knew quite a bit, but the most amazing thing was his ability to synthesize great amounts of information into simple and factually correct assessments,” says Lasala. He recalls examining a patient who had been seen in the practice 20 years previously. “Whose notes do you think were in the chart?” Whereas some of the notes would run to two or three pages, he says, “Larry’s notes were three lines—but much more informative. They were so pithy and to the heart of the matter—no pun intended—that you couldn’t fail to be impressed. He could say an awful lot with very little.”

Eagle recognized this ability as well, along with Cohen’s penchant for relating to patients. “He’s brilliant,” Eagle says. “He doesn’t go through the motions but focuses entirely on each patient, and he finds things that other doctors don’t find. He’s meticulous, not only in his speech, dress and manner, but in his physical examination. He’s like a laser-guided missile when it comes to finding a problem.”

Cohen is looking forward to his continued work with patients, students and trainees and his work on the medical school’s admissions committee, on which he has served for the past six years. He’ll continue teaching for the satisfaction of inspiring young people and watching them grow, he says, and he’ll remain active academically because of the stimulation it provides. “The collegiality and contact with people who are pushing the frontiers of science—that is a very good feeling,” he says.

But his voice takes on a tone of reverence when he speaks of his work in the clinical realm.

“Being able to make a difference in patients’ lives,” Cohen says, “is a privilege.”

Michael Fitzsosa is director of communications in the medical school’s Office of Institutional Planning and Communications.



Benjamin Bunney

## Retiring chair of psychiatry honored

Measuring the legacy of a scientist with a 38-year career can take many forms—tallies of awards, peer-reviewed publications or citations of papers. But to grasp his impact as a leader, colleague and mentor, one need look no further than his students.

On July 12, students and colleagues of BENJAMIN S. BUNNEY, M.D., the Charles B.G. Murphy Professor of Psychiatry and professor of pharmacology and neurobiology, showed that Bunney's legacy will live on at universities around the world long after his retirement from Yale last year.

Bunney, known to colleagues as Steve, has spent 40 years at Yale, the past 20 as chair of psychiatry. One of the world's leading authorities on the neurotransmitter dopamine, he has made fundamental contributions to the study of the regulation of dopamine neuronal systems and the effects of antipsychotic drugs on the brain. The July symposium in Bunney's honor brought together students and colleagues who carry on the themes of his research.

"You can't mention the dopamine system without mentioning his seminal work," said Tony Grace, Ph.D., the first graduate student to work in Bunney's lab and now a professor of neuroscience, psychiatry and psychology at the University of Pittsburgh.

Bunney's pioneering experiments, first carried out in the 1970s under the mentorship of George K. Aghajanian, M.D., '58, FW '63, the Foundations Fund Professor of Psychiatry, recorded the extracellular activity of dopamine neurons in the brain for the first time. Bunney's laboratory then went on to identify them

and characterize both their extra- and intracellular functioning. Disruptions of the dopamine system have been linked to schizophrenia, Parkinson's disease, attention-deficit hyperactivity disorder and drug abuse. Much of Bunney's career was spent probing the dopamine-schizophrenia link; and his work, combined with the contributions of others, helped lead to a new generation of antipsychotic drugs.

Paul Greengard, Ph.D., the Vincent Astor Professor at Rockefeller University, winner of the 2000 Nobel Prize in physiology or medicine for his dopamine research, a former professor of pharmacology and psychiatry at Yale and early collaborator with Bunney, led off the day with a discussion of his work. Greengard has shown that dopamine and other neurotransmitters can activate a key protein known as DARPP-32, which in turn influences the functioning of nerve cells.

At the end of the day, Bunney spoke modestly of his own career, calling every symposium speaker "a pioneer in their own area."

"I'm going to miss being a scientist and I'm going to miss being at Yale enormously," said Bunney. The audience responded with thunderous applause and a standing ovation. "You can never repay your own mentors enough," Bunney said, "but you can pass along what you've learned to the next generation."



Robert Alpern



Harlan Krumholz



Mary Tinetti



Erol Fikrig

## Three faculty named to IOM in 2007

Three Yale faculty members were named to the Institute of Medicine (IOM) in October, bringing the total from the university to 42.

Among the 65 new members inducted this year were Dean ROBERT J. ALPERN, M.D., Ensign Professor of Medicine; HARLAN M. KRUMHOLZ, M.D., the Harold H. Hines Jr. Professor of Medicine and professor of epidemiology and public health and of investigative medicine; and MARY E. TINETTI, M.D., the Gladys Phillips Crowfoot Professor of Medicine and professor of epidemiology and public health and of investigative medicine.

Alpern is a nephrologist whose research has focused on the regulation of kidney transport proteins. Before coming to Yale, Alpern was dean of the University of Texas Southwestern School of Medicine.

Krumholz, the director of the Robert Wood Johnson Clinical Scholars Program, is noted for research aimed at determining optimal clinical strategies and identifying opportunities for improvement in the prevention, treatment and outcome of cardiovascular disease. His research group has pioneered innovative approaches to identifying key success strategies for top-performing health care organizations and translating the knowledge into practice.

Tinetti is the director of the Yale Program on Aging. Her recent work focuses on the effect of multiple diseases on health outcomes and on appropriate decision making in the face of multiple competing diseases. She has been the director of the Claude D. Pepper Older Americans Independence Center at Yale since 1992.

## Lyme disease expert to lead ID section

EROL FIKRIG, M.D., FW '91, an expert in vector-borne diseases and a pioneer in the development of a vaccine for Lyme disease, has been named chief of the Section of Infectious Diseases in the Department of Internal Medicine. Last fall he was also named a Howard Hughes Medical Institute (HHMI) investigator.

Fikrig, recently named Waldemar Von Zedtwitz Professor of Medicine, succeeds Acting Chief Vincent J. Quagliarello, M.D., HS '81, professor of medicine and clinical director of infectious diseases. Fikrig graduated from Cornell University's school of medicine and completed his residency in internal medicine at Vanderbilt University Hospital. He came to Yale as a postdoctoral fellow in infectious diseases and immunobiology in 1988. He was appointed assistant professor of medicine in 1992 and professor of medicine a decade later.

JACK A. ELIAS, M.D., chair and Waldemar Von Zedtwitz Professor of Medicine, called Fikrig a "world-class scientist" and one of the "world's experts" in Lyme disease and West Nile virus. Under Fikrig's leadership, the section will place greater emphasis on developing a program in emerging diseases, vaccines and biology. This effort will include hiring at least four investigators with strengths in basic science, translational research and clinical research. The goal is to cultivate an interdisciplinary community of scientists who will use information gathered at the bedside to develop models in the laboratory for testing new therapies, including vaccines to prevent insect-borne infectious diseases.





Richard Belitsky



James Duncan



Linda Mayes



Derek Toomre



Kyle Vanderlick

Four medical school faculty members have been named to endowed chairs. **Richard Belitsky**, M.D., deputy dean for education, has been named the Harold W. Jockers Associate Professor of Medical Education. Belitsky served as the director of graduate education in the Department of Psychiatry from 1996 to 1997 and as the department's director of education from 1997 to 2006. He has earned numerous professional honors at Yale, including the Charles W. Bohmfalk Teaching Prize and the Francis Gilman Blake Award. **James S. Duncan**, Ph.D., was named the Ebenezer K. Hunt Professor of Biomedical Engineering in September. Duncan is the associate chair and director of undergraduate studies in the Department of Biomedical Engineering as well as the vice chair for bioimaging sciences research in diagnostic radiology. **Erol Fikrig**, M.D., an expert in such vector-borne diseases as Lyme disease, human granulocytic ehrlichiosis and West Nile virus, has been named Waldemar Von Zedtwitz Professor of Medicine (See opposite page). **Sally Shaywitz**, M.D., has been named the Audrey Ratner Professor in Learning Development. Shaywitz is the co-director of the newly formed Yale Center for Dyslexia and Creativity and the Yale Center for Learning, Reading and Attention. Her research pioneered the use of functional magnetic resonance imaging in investigating reading disorders.

**Henry J. Binder**, M.D., professor of medicine and of cellular and molecular physiology, received the 2007 Distinguished Mentor Award from the American Gastroenterological Association in May.

This award recognizes individuals who have made lifelong efforts to mentor trainees in gastroenterology. Binder established the Gastrointestinal Research Training Program at Yale and is the program's director.

**Robert Dubrow**, M.D., associate professor in the Division of Chronic Disease Epidemiology and director of the Office of International Training at Yale's Center for Interdisciplinary Research on AIDS, has been named associate dean for academic affairs at the Department of Epidemiology and Public Health. In this newly created position, Dubrow will oversee and coordinate the educational curriculum, chair the education committee and help develop an office of public health practice to offer M.P.H. students practice experience and internships around the world.

**Linda C. Mayes**, M.D., the Arnold Gesell Professor of Child Psychiatry in the Child Study Center and professor of pediatrics and psychology, has been named Special Advisor to the Dean as of July 1. Mayes will be responsible for the oversight of scientific integrity in research conducted at the School of Medicine and for the investigation of any allegations of scientific misconduct. In addition, the special advisor often acts as a mediator when there are substantive faculty issues regarding authorship. Mayes will also function as the dean's representative in hearing grievances by faculty and students regarding appointments, promotions and terminations.

Mayes joined the faculty of the Yale Child Study Center in

1985. Her work focuses on the stress-response and emotional regulatory mechanisms in children and adolescents at both biological and psychosocial risk. Mayes chairs the directorial team of the Anna Freud Centre in London and of the Anna Freud Centre program within the Child Study Center at Yale.

**Susan T. Mayne**, Ph.D., professor in the Division of Chronic Disease Epidemiology in the School of Public Health, has been appointed to a three-year term on the Institute of Medicine's Food and Nutrition Board. The board makes recommendations on ways to improve food quality and safety to prevent diet-related diseases and promote public health.

**Pasquale Patrizio**, M.D., professor of obstetrics, gynecology and reproductive sciences, has been elected to serve as president of the Fertility Preservation Special Interest Group of the American Society for Reproductive Medicine. His term began in October.

**David M. Rothstein**, M.D., associate professor of medicine, has been elected a councilor-at-large of the American Society of Transplantation, an international organization of more than 2,700 transplant physicians, surgeons and allied health professionals dedicated to advancing the field of transplantation through research, education, advocacy and organ donation.

**Derek K. Toomre**, Ph.D., assistant professor of cell biology, has received a \$2.5 million five-year New Innovator Award from the National Institutes of Health. Toomre will use the funding to develop a new generation of

total internal reflection fluorescence microscopes to analyze trafficking and signaling at the cell cortex, a structure inside the cell membrane involved in the cell's mechanical support and movement. Toomre's group will apply this technology to understand the trafficking pathways that regulate insulin-stimulated delivery of glucose transporters to the cell surface—a process disrupted in type 2 diabetes.

**Kyle Vanderlick**, Ph.D., has been appointed dean of the Yale Faculty of Engineering and named the Thomas E. Golden Professor of Engineering. Vanderlick, formerly professor and chair of chemical engineering at Princeton University, started at Yale on January 1.

Her research has led to fundamental insights in areas ranging from metallic adhesion in micro/nanoscale devices to the action of antimicrobial peptides on cell membranes. In 2002 she was awarded both the Princeton Engineering Council Teaching Award and the Princeton President's Award for Distinguished Teaching.

Vanderlick succeeds **Paul A. Fleury**, Ph.D., the Frederick W. Beinecke Professor of Engineering and Applied Physics and professor of physics. Fleury will remain the director of the Yale Institute for Nanoscience and Quantum Engineering.

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SEND FACULTY NEWS TO  
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to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu)

## Yale system remains a strong draw

Incoming students cited the quality of faculty, research opportunities and the thesis requirement.

Kwame and Kofi Atsina went to different colleges and have different interests, but when it came time to apply to medical schools, both put Yale on their lists. In September the brothers from Ghana were among the 100 first-year students in the Class of 2011 at the White Coat Ceremony, the annual event that welcomes students to the field of medicine.

"I never knew that we'd end up at the same school," said Kwame, who attended Lehigh University. "I never guessed we could be so fortunate."

"I'll want to know where he is and what he's doing, but I have to give him space. He's an adult now," said his big

brother Kofi, who is 15 months older and graduated from Yale College.

Director of Admissions Richard Silverman said the Atsinas aren't the first sibling pair to be admitted to the medical school in the same class, but he agrees the odds are long—especially this year. Silverman said the school received 4,056 applications for 100 slots, the highest number in the school's history and a 9.7 percent jump over last year.

As always, the Yale system remains a big attraction for incoming students. According to a survey Silverman conducted, students said it was their main reason for choosing Yale. They also cited the school's reputation, research opportunities, the quality of faculty and students and the requirement to write a research thesis.

"High school was very competitive," said George Hauser. "I wanted to learn for the sake of learning."

"I fell in love with the vibe," said Melanie Johnchilla. "The lack of competition. The spirit of teamwork."

In his opening remarks at the ceremony, Dean Robert J. Alpern, M.D., Ensign Professor of Medicine, said that the Yale system didn't dispense with grades and rankings to make it easier for students. "We expect greater things from you than grades," he said. "We expect you to become leaders in the medical world."

—Jennifer Kaylin



**ABOVE** Forrester Lee helped Kofi-Buaku Atsina don his white coat at the annual ceremony in Harkness Auditorium.

**RIGHT** Among the top reasons for choosing Yale, a survey of the 100 incoming students found, were the Yale system, the school's reputation and the quality of faculty and students.



**ABOVE** After the ceremony students posed for a group photograph outside the Sterling Hall of Medicine.



TERRY DAGRADI (3)



## Response to patients matters most, neurosurgeon tells Physician Associate grads

Twenty years ago Alfredo Quiñones-Hinojosa, M.D., was a 19-year-old illegal immigrant who spoke no English and picked tomatoes in California's San Joaquin Valley. On October 16 he gave the Commencement address to the 33 members of the Physician Associate Class of 2007, speaking as a renowned neurosurgeon and faculty member at Johns Hopkins University School of Medicine.

His path into medicine started with an industrial accident—he fell into a tank car that was used to carry liquefied petroleum gas. When he regained consciousness in the hospital and saw the man in the white coat, he said, “I felt a sense of security that a doctor was taking care of me.” His future, he decided, lay in health care. After attending San Joaquin Delta Community College in Stockton, Calif., and the University of California at Berkeley, he eventually graduated from Harvard Medical School. Quiñones-Hinojosa now directs the Brain Tumor Surgery Program at the Johns Hopkins Bayview Campus.

In his address, Quiñones-Hinojosa wove together the story of his own transformation from immigrant to surgeon with the awe he still feels at the power of his relationships with his patients. Referring to one patient, he said, “Imagine the trust he was putting in me at that moment.” In a talk that referred to Albert Einstein, Martin Luther King Jr., Mohandas Gandhi and Cesar Chavez, among others, he said, “It is not intellect that makes a great scientist, but character; and more than

knowledge, it is the response to patients that matters most. ... Remember, graduates—this is a very important lesson; there is a fine line between confidence and arrogance.”

Dean Robert J. Alpern, M.D., Ensign Professor of Medicine, told the new physician associates, “It is clear that the need for health care is so huge that you will become an increasingly important part of it.” He urged them to help their patients attain and maintain their health; to remain committed to lifelong learning and compassion; and to strive to become leaders in their field.

Student awards went to Deborah B. Cole, PA '07, who received the Academic Achievement Award; Elisabeth M. Samels, PA '07, who received the Clinical Excellence Award; and Matthew S. Cook, PA '07, who received the Dean's Humanitarian Award.

The Didactic Instruction Award for dedication and excellence went to Jeffrey

**BELOW** Alfredo Quiñones-Hinojosa told the physician associate graduates of his rise from undocumented farmworker in California to neurosurgeon at Johns Hopkins University.



E. Topal, M.D., clinical instructor in medicine and infectious diseases, known to students as the “antibiotic guru” of the pharmacology and microbiology courses. The Clinical Site Award, for a clinical rotation site that provides exemplary clinical teaching, was given to the Bridgeport Hospital Department of Emergency Services. The Jack W. Cole Society Award, for significant contributors who support the physician associate profession, was given to William L. Cushing, PA '02, clinical instructor in medicine.

—Jill Max



**ABOVE** Jesse Harkness and Deborah Cole, left, and Timothy Graves and Adam Kelly, right, before the ceremony in Woolsey Hall.

**RIGHT** Clockwise from top left, Christopher Maio, Jacob Hauptman, Jesse Harkness, Maria Clough and Marlene Brodka joined their classmates for a group photo before Commencement.





As a resident in orthopaedic surgery at Yale, John Barrasso learned the importance of planning ahead, a lesson that has served him well in medicine and politics. In 2002 the Republican won a seat on Wyoming's state senate and last fall he was appointed to fill a vacancy in the United States Senate.

## Surgeon, rodeo doctor and, now, senator

Former Yale resident John Barrasso is named to fill a senate vacancy.

**John A. Barrasso, M.D., HS '83**, the new Republican U.S. senator from Wyoming, recalls that when he was a resident at Yale from 1978 to 1983, his professors stressed the importance of having a plan before going into surgery. "They would tell us that if you don't have a plan to begin with on how to solve the problem, you'll have a much tougher time halfway through the operation," he said.

This advice has served Barrasso well both as an orthopaedic surgeon and as a politician and civic activist. Early in his career, Barrasso's plan was to provide health care for as many people as possible inside and outside the operating room. That plan culminated on June 25, when he was appointed by Gov. David Freudenthal to fill the U.S. Senate seat vacated by the late Craig Thomas. "Affordable and available health care is a big issue in Wyoming," he said. "It's a rural state, and people are spread out. I want to help find ways to get health care to them."

As a medical student at Georgetown University, Barrasso was already thinking about ways to broaden his impact on the public's health care needs. He joined the American Medical Student Association, where he worked on issues related to preventive medicine and health care access.

He produced television and radio reports and newspaper articles on health and fitness for more than 20 years, and served as the medical

director of Wyoming Health Fairs, a series of programs on preventive medicine held across the state. He presently writes a monthly series of articles on preventive health care for elders called "Caring for Wyoming's Seniors." He has also served as a rodeo physician for the Professional Rodeo Cowboys Association and as a sports team physician for Casper College. In 2002 he ran for a seat in the Wyoming State Senate. "I knew I could help patients one-on-one in the office," he said, "but I felt I could do more to help more people working legislatively."

Barrasso, now 54, won the seat and was re-elected in 2006. His greatest accomplishment as a state senator, he said, was co-sponsoring the Hathaway Scholarships program, which gives eligible students scholarship money to attend the University of Wyoming or any state community college. "It was sponsored by two Republicans and two Democrats and ultimately was signed by a Democratic governor and named for Republican governor [Stanley Hathaway]," Barrasso said. "It was the best of bipartisan support for a worthy public policy."

An ongoing desire to broaden the scope of his influence compelled Barrasso to seek the vacant U.S. Senate seat. "I wanted to do on the national level what I had been doing on the state level," he said, "provide quality education for kids, quality jobs for communities and health care accessibility for everyone."

Gary E. Friedlaender, M.D., HS '74, the Wayne O. Southwick Professor and chair of orthopaedics, met Barrasso during his training at Yale and has stayed in touch over the years. What



characterized Barrasso as a resident, he said, was his “strong intellect and highly capable technical skills. As a house officer, he was a great physician who had compassion, commitment and ethical moral character.”

Barrasso says he supports “lower taxes, less spending, traditional family values, local control and a strong national defense.” In the state senate he received an “A” rating from the National Rifle Association, voted for prayer in schools, voted against gay marriage and sponsored legislation to protect the sanctity of life.

“In today’s world, his views would earn him a conservative label,” Friedlaender said, “but John is not inured to the needs of people, especially in terms of health care. I would describe his politics as thoughtful.”

In his new job as a U.S. senator, Barrasso serves on the Senate Energy and Natural Resources Committee, the Environment and Public Works Committee and the Indian Affairs Committee.

The senate seat Barrasso filled doesn’t come up for re-election until 2012, but Barrasso must run as the incumbent in a special election during the 2008 general election.

Friedlaender calls Barrasso’s ability to combine a health care mindset with his political skills a “powerful partnership. He’ll do more with it than the average individual,” he predicted.

—Jennifer Kaylin

## The physiological and the psychological: how women and men are different

**Louann Brizendine, M.D.** ’81, never suspected that her third-year psychiatry rotation would lead to her becoming a best-selling author. Recalling that rotation, she said, “I was stunned by the two-to-one female/male ratio. No one knew why so many patients were suicidally depressed women.”

Over the past 25 years Brizendine, director of the Women’s Mood and Hormone Clinic at the University of California, San Francisco (UCSF), has developed many theories about women’s psychological issues. She finally explained them in *The Female Brain* (Morgan Road Books, 2006), which sold 80,000 copies in its first four months and has been translated into 18 languages. Brizendine believes that physiological differences between men and women lead to significant psychological differences—for example, oxytocin, “the hormone of intimacy,” causes women to crave social contact far more often than men.

Her interest in women’s mental health continued during a psychiatry residency at Harvard and on into her private practice. Recruited by UCSF in 1988, Brizendine taught psychiatry. “Then I got pregnant, and had all the postpartum hormones,” she said. “Phases of a woman’s life were no longer theoretical.”

She began working with UCSF neuroendocrinologists to explore whether fluctuating hormones could trigger women’s mood disorders. “A progesterone metabolite in the brain decreases at menstruation, causing

[symptoms similar to] Valium withdrawal: emotional sensitivity, mood changes, etc.,” observed Brizendine, who had read the literature about hormones, estrogen and neurochemical brain changes in mammals. “Animal models aren’t adequate—you can’t ask a mouse how its mood is today.”

Her new perspective led to an innovative course at UCSF in 1993, “Hormones in Psychiatry,” which quickly evolved into her mood and hormone clinic. The clinic now treats about 600 women annually.

Brizendine’s research into hormones led her to a startling conclusion. “It hit me like a lightning bolt—testosterone causes sexual desire. No one ever thought the problem of frigidity might be biological! I started measuring testosterone and correlating it with sexual interest in females. Levels were often low. Watching patients suffer, knowing other psychiatrists weren’t seeing it the same way, I felt a passion to clarify biological aspects of women’s mental health and hormonal issues,” she said.

Surprisingly, some patients wanted to stay on the antidepressant Prozac, even though one of its side effects is decreased libido. They were choosing better moods over better sex. In early Prozac trials, manufacturer Eli Lilly and Company had found (but not publicized) women’s orgasmic difficulties. “Female sexual problems are treated as just ho-hum,” Brizendine said, “but erection or ejaculation problems are treated as a medical emergency.”

Her book’s provocative claims—including the contention that oxytocin gives females so much pleasure that they crave connections like gossip with friends to get that “rush”—are criticized



ANDY FREERBERG

Louann Brizendine believes that psychological differences between men and women have their roots in physiological differences. Throughout her career she has explored the biological aspects of women's mental health.

for exaggerating gender differences or oversimplifying research. Some social scientists say her unflattering, dubious presentation of female behaviors weakens crusades for equal pay and opportunities.

Other colleagues remain unruffled. Bruce McEwen, PH.D., head of the Harold and Margaret Milliken Hatch Laboratory of Neuroendocrinology at Rockefeller University, confirmed the biological basis of sex differences in brain and behavior. "Sex hormones and experiences interact over the entire lifespan and alter brain structure and function in both men and women. Brizendine perhaps has not emphasized [these ongoing interactions] as much as she might have."

He appreciates Brizendine's efforts to "elucidate biological bases of how many men and women behave. Whether she's contributed to more prejudice, in spite of the best intentions to educate ... is to me the almost inevitable price of writing about this topic."

Brizendine, ruefully aware of the controversies, had aimed to preclude them. In a mass-market book, she discovered, "you can't go into details of how and where a study was done. I wrote a more sophisticated section for people in science, so that anyone wanting to know more could go to those 45 pages of notes at the back." However, determined to shorten the length of *The Female Brain*, the publisher deleted all of Brizendine's painstaking explanatory notes during final editing.

How does she endure the negative reactions? "I just breathe deeply," Brizendine said. "Some days, I need ovaries of steel."

—Carol Milano

## Policy expert finds answers to large health problems come from diverse teams

In the 30 years that Darryl E. Crompton, J.D., M.P.H. '76, has worked as a public health lawyer, nothing prepared him for the moment he held a 4-month-old South African girl dying of AIDS. As she wheezed and shivered in his arms, all he could think about was how governments, nonprofit organizations and religious groups had failed her and the nearly 1 million other AIDS orphans in Africa.

"This was the first time I had held someone who was dying," Crompton said. "It made me more sensitive and committed to make a contribution to social change related to AIDS and poverty."

Crompton spent a month in South Africa in 2005 as a consultant for the humanitarian organization CHF International. His assignment was to determine how well the country's social infrastructure supports AIDS orphans, some of whom have AIDS themselves.

South Africa was one of many stops on a professional journey dedicated to improving the health of the poor and uninsured, especially children. Crompton, who received his law degree from the University of California, Davis, and his master's degree in public health from Yale, has taught health law, policy and bioethics at the University of Alabama; trained Siberian physicians in health care policy; and studied pediatric patients' rights in Scotland, England and Denmark. He is now director of the Institute for International Public Policy of the United Negro College Fund Special Programs Corporation in



Washington, D.C. He is also a lawyer and policy, management and organization development consultant in Washington.

Crompton became sensitized to the plight of the poor as a boy. His parents wanted their children to have a multicultural education, so when Crompton was 11, the family left their home in Los Angeles to spend a year in Morocco. "I saw other 11-year-old children who had dropped out of school and were working in various and sundry jobs," he said. "People were living in mud huts with no running water."

Crompton's father worked as an architect, a profession that provided the family with opportunities for international travel. Their next move was to Copenhagen, where Crompton experienced socialized medicine for the first time. When he or members of his family got sick, they received high-quality health care—for free.

Growing up in the political crucible of the civil rights movement and the Vietnam War, Crompton knew he wanted to contribute to social change. He considered becoming a dentist because of his interest in science, but instead chose a career in public health and health policy. "When I looked at how I could make a contribution to social change in health, it wasn't through the practice of medicine, one patient at a time, but through public policy," he said.

After graduating from the University of California, Los Angeles, he decided to study law. As a law student Crompton took courses in public health. Those classes, combined with an internship in the Washington office of U.S. Rep. Yvonne Braithwaite Burke, a Democrat

from Los Angeles, convinced him to work for an M.P.H. as well.

At Yale, Crompton was pleasantly surprised by the varied backgrounds of his classmates. "We had teachers, musicians, nuns, priests, mathematicians, people with philosophy backgrounds. It was very exciting for me."

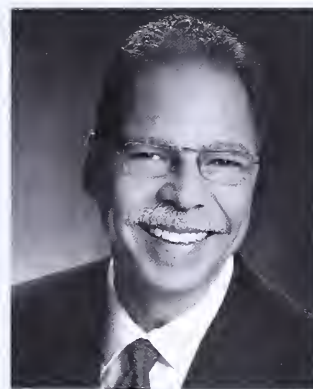
In fact, that multifaceted learning environment informs his approach to public health to this day. "I don't have a magic bullet, but I know the only way you can achieve transformational change is through interdisciplinary teams of people." He notes that if a patient with HIV or AIDS is homeless or can't afford food, antiretroviral drugs alone aren't going to offer much help.

Crompton saw the complexity of health issues when he was hired in 1988 by the Florida commissioner of education to evaluate drug prevention programs for adolescents. "There are lots of drug and alcohol prevention models, but basically very few are effective," he said. "It's an example of the interconnection between public health care and a whole range of broader social, political and cultural issues."

Crompton is also interested in diversity of another sort. There should be more diversity and minority representation in health care, he says. He would like medical and public health schools, such as Yale's, to identify, nurture and support talented minority middle and high school students to prepare them for careers in public health.

It's all part of his lifelong goal of providing universal access to health care. "I don't see a lot of caring in the health care system," he said. "How can we improve the caring part of health care?"

—Lori Ann Brass



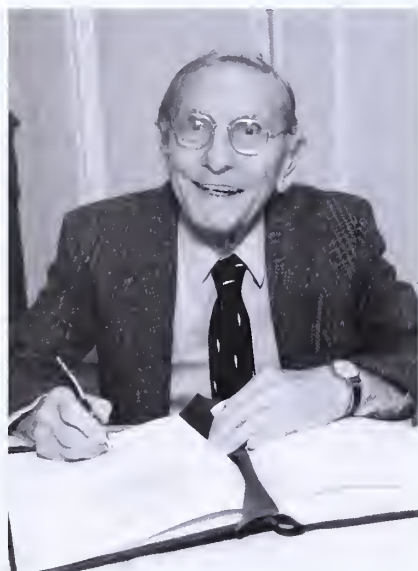
TOM RADCLIFFE

Darryl Crompton first thought of becoming a dentist, but chose public health policy as a career in order to contribute to social change. His ultimate goal is to see universal access to health care.

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### Familiar Faces

Do you have a colleague who is making a difference in medicine or public health or has followed an unusual path since leaving Yale? We'd like to hear about alumni of the School of Medicine, School of Public Health, Physician Associate Program and the medical school's doctoral, fellowship and residency programs. Drop us a line at [ymm@yale.edu](mailto:ymm@yale.edu) or write to Faces, Yale Medicine, 300 George Street, Suite 773, New Haven, CT 06511.



HAROLD SHAPIRO

## Alumnus receives Yale Medal

A typical Thursday morning usually finds Samuel D. Kushlan, M.D. '35, HS '37, attending morning report, reading journal articles in the library and going to internal medicine grand rounds. Retired since 1982, Kushlan, now 95, still drives almost every day to the hospital where he has worked for 70 years and continues to be a role model for younger colleagues.

Kushlan has received many honors throughout his distinguished career. In November he received the 2007 Yale Medal in recognition for his years of leadership. The medal, the highest award bestowed by the Association of Yale Alumni, is given annually to five alumni in honor of outstanding service to the medical school and the university.

Born in New Britain, Conn., in 1912, Kushlan was so inspired by his local doctor that by the age of 10 he knew he wanted to be a physician. After graduating from the School of Medicine, he completed his residency at what was then New Haven Hospital, earning a salary of \$25 a month. "Medicine was very primitive 70 years ago," he recalled. His main diagnostic tools were taking a medical history and doing a physical exam—X-rays were the only imaging technique available; and in those pre-penicillin days, the principal medications were aspirin, digitalis, phenobarbital, quinine and morphine. Today more than 4,000 medications are listed in the *Physicians' Desk Reference*.

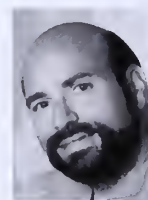
Except for a brief stint at Harvard in 1938, Kushlan spent

his entire career at Yale. He established the first endoscopy clinic in Connecticut in 1942 and was the sole member of the gastroenterology section from 1938 until 1955.

From 1967 until his retirement, Kushlan served as the associate physician-in-chief at Yale-New Haven Hospital and as a clinical professor of medicine. When he retired, one of the hospital's medical services was named for him, although he said he feels out of place among the other legendary physicians—Elisha Atkins, M.D.; John P. Peters, M.D.; Gerald Klatskin, M.D.; Allan Goodyer, M.D.; and Robert Donaldson, M.D.—with whom he shares this honor.

Although he says he does more learning than teaching these days, Kushlan still has some wisdom to impart from the days when the practice of medicine relied more on observation than on diagnostic tests. He advises colleagues to use such simple diagnostic methods as having a patient with back pain lie down to determine its source: if the pain goes away, it's muscular; if it doesn't, it's internal. "I sort of toss in a pearl from time to time to pay my way," he said.

In addition to his activities at the hospital and the lectures and concerts he regularly attends with Ethel, his wife of 73 years, Kushlan also remains an active member of the executive committee of the Association of Yale Alumni in Medicine. "I enjoy the opportunity to be busy," he said.



Rock Positano



Cargill Alleyne Jr.

## 1960s

**Charles R. Rosenfeld, M.D., HS '67**, has stepped down after 30 years as director of the Division of Neonatal-Perinatal Medicine at the University of Texas Southwestern Medical Center in Dallas. He also stepped down as director of the fellowship training program. He will retain his position as the George L. MacGregor Professor of Pediatrics and continue his research on cardiovascular physiology during pregnancy. Rosenfeld is in the 32nd year of an NIH grant to study uroplacental blood flow. "My start in pediatrics and exposure to neonatal care and research at Yale influenced my career choices," he writes.

## 1970s

**Steven H. Moffic, M.D. '71**, has begun writing a column, "The Ethical Way," for *Clinical Psychiatry News*, a monthly publication for psychiatry specialists. A professor of psychiatry and behavioral medicine at the Medical College of Wisconsin, he has also written about psychiatric perspectives on global warming.

## 1980s

**Mary Ann Evans, M.P.H. '80**, is working as a substitute teacher in Chicago and Washington, D.C. She has been an active member of the American Public Health Association, participating in the Each One Teach One membership drive.

**Rock G. Positano, D.P.M., M.P.H. '89**, a specialist in foot and ankle health, is writing a health column for *The Huffington Post*. His first columns offered warnings





**Andrea Humphrey Stephen Vindigni**

about the dangers of flip-flops and heavy backpacks for school-children. Positano, who directs the Non-surgical Foot and Ankle Service at the Hospital for Special Surgery in New York City, also writes a health column for the *New York Post*.

## 1990s

**Cargill H. Alleyne Jr., M.D.** '91, associate professor and vice chair for education and research in the Medical College of Georgia (MCG) Department of Neurosurgery, was named the Marshall Allen Distinguished Chair of the department in September. Alleyne went to MCG in 2004 from the University of Rochester Medical Center, where he was chief of the Division of Stroke and Cerebrovascular Neurosurgery and associate residency program director for the Department of Neurological Surgery. At MCG he directs the Neurosurgery Vascular Service and the Neurosurgery Residency Training Program and co-directs the Cerebrovascular Research Laboratory.

**Melissa T. Berhow, PH.D.** '96, M.D. '97, assistant professor of anesthesiology at Stanford University, and Rick Bentley welcomed the arrival of their son, Logan Alaric Bentley, on July 20. Logan weighed in at 9 lbs., 12 oz. Everyone is doing well.

**Brian "Ari" Cole, M.D., M.P.H.** '95, was selected to join the Harvard-Radcliffe Chorus, one of the Holden Choral Ensembles at Harvard. Cole is currently a student at Harvard's Kennedy School of Government, where he recently had the chance to question U.S. Secretary of Health and Human Services

Michael O. Leavitt on the use of steroids in the meat and poultry industry.

**Linda G. Marc, M.P.H.** '92, was married on March 30 to Jean R. Clérismé, PH.D. '96, foreign minister for the Republic of Haiti. Marc is a researcher in the psychiatry department and in the Cornell HIV Clinical Trials Unit at the Weill Medical College of Cornell University. Clérismé, formerly an ambassador from Haiti to international trade organizations, is an authority on economics, development and cultural anthropology.

## 2000s

**Kee Chan, PH.D.** '07, was selected by the National Institutes of Health (NIH) as one of four research participants to attend the 57th Lindau Meeting of Nobel Laureates and Students in Lindau, Germany, in July. Chan conducted research at the NIH while completing her doctorate in public health at Yale. Since 1951, Nobel laureates in chemistry, physics and physiology or medicine have convened annually in Lindau to meet with students and young researchers from around the world. The gathering allows participants, most of whom are students, to benefit from informal interaction with the Nobel Prize winners.

**Bridgid T. Curry, M.P.H.** '07, M.E.M. '07, was married on June 2 to Amos H. Presler in Schuylkill Haven, Pa. In August Curry became a presidential management fellow and regulatory analyst at the Environmental Protection Agency in Washington, D.C. Presler attends law school at American University.

**Andrea C. Humphrey, M.P.H.** '05, was married in July to Jonathan T. Schmidt, J.D. '06, in Minnetonka Beach, Minn. She is a doctoral student in international health and development at the Tulane University School of Public Health and Tropical Medicine in New Orleans and a management consultant in Philadelphia. Her husband is an associate at Ballard Spahr Andrews & Ingersoll, a law firm in Philadelphia.

**Dena J. Springer, M.D.** '04, was married to David E. Novick, J.D., on September 2 in West Hartford, Conn. Springer, who completed her residency at Children's Hospital Boston in June, is a staff physician at Pediatrics of New York. Novick is an assistant district attorney in the trial division and the sex crimes unit of the New York County District Attorney's Office.

**Stephen Vindigni, M.P.H.** '04, has enrolled at Emory University School of Medicine to pursue an M.D. After receiving his public health degree, Vindigni worked for the National Center for Environmental Health of the Centers for Disease Control and Prevention, advancing environmental public health. He traveled frequently to Kenya to work on projects related to safe drinking water and to developing a database to track Kenya's nursing workforce capacity.

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**John W. Berg**, M.D. '51, a pathologist and cancer epidemiologist, died on July 6, at his home in Tempe, Ariz. He was 82. Berg enlisted in the Army after two years at Yale College and then returned to Yale after service in Europe during World War II. He completed his training at Memorial-Sloan Kettering Hospital in New York City in 1955, and then joined the staff as a pathologist/cytologist. He joined the National Cancer Institute in 1965 as a pathologist/epidemiologist. In 1973 he became director of the Iowa State Cancer Registry and professor of preventive medicine at the University of Iowa. In 1977 he moved to Colorado, where he served first as director of epidemiology and statistics at the Comprehensive Cancer Center, then as professor of pathology and preventive medicine at the University of Colorado Health Services Center. He was author or co-author of over 100 research papers and articles, primarily on cancer pathology and epidemiology, and served as editor of *Cancer*, the journal of the American Cancer Society.

**Richard W. Breck**, M.D. '45, died on July 30 at his home in Wallingford, Conn. He was 89. Breck served in the U.S. Army during World War II and was a medical officer at Scott Air Force Base, Fort Belvoir and Walter Reed General Hospital. He was an attending physician at Meriden-Wallingford Hospital from 1949 to 1981 and chief of staff at the hospital from 1960 to 1962. He also served as medical director and attending physician for the former Convalescent Home, now the Regency House of Wallingford;

from 1949 to 1980 he was physician for the International Silver Company. A former secretary of the executive committee of the Association of Yale Alumni in Medicine, he received the Distinguished Alumnus Award in 1988. Breck retired from general practice in 1995 but continued to see geriatric patients on a part-time basis.

**Robert C. Charman**, M.D., FW '64, HS '67, died on May 8 at his home in Lebanon, N.H. He was 71. In 1967 Charman joined the staff at Mary Hitchcock Memorial Hospital in Lebanon and served in various positions, including acting chair of medicine, director of clinical services for the Department of Medicine and director of the office of graduate and continuing medical education. In 1992 he published *At Risk: Can the Doctor-Patient Relationship Survive in a High-Tech World?* The book, written for patients and their families rather than physicians, was favorably reviewed by the *Annals of Internal Medicine* in 1993. Charman served as vice president of the New Hampshire Medical Board and chair of its Medical Review Subcommittee until 1996.

**Kenneth M. Frankel**, M.D., HS '66, died of cancer on June 17 at his home in Longmeadow, Mass. He was 66. After an internship at Yale, Frankel served in the U.S. Army Medical Corps in Vietnam from 1967 to 1969. For his service he received several medals, including the Bronze Star. He was one of the founding members of Vietnam Veterans Against the War. In 1974 he moved to Longmeadow, where he was chief of thoracic surgery

at Baystate Medical Center in Springfield. He taught at Tufts University School of Medicine and published a number of articles on pulmonary malignancies, self-inflicted chest wounds and the management of dyspnea.

**Laurie B. Hickey**, M.D. '00, M.P.H. '00, died on May 24 in Ithaca, N.Y. She was 36. While at medical school, Hickey traveled to Gabon, Africa, to work at the Albert Schweitzer Hospital in Lambaréné. Upon her graduation she completed a residency in pediatrics at Children's Hospital Boston and Boston Medical Center. She moved to Auburn, N.Y., in 2005, where she joined the Auburn Pediatrics Group as a primary care pediatrician. Hickey was a candidate fellow of the American Academy of Pediatrics.

**Russell Miller Jr.**, M.D. '55, PH.D., died on June 18 in Elk Grove, Calif. He was 80. Miller practiced medicine in the East Bay area for more than 30 years and was an associate clinical professor at the school of medicine of the University of California, Davis.

**Monica A. O'Neill**, M.P.H. '86, died on August 18 of cancer at her home in New Haven. She was 49. Until her illness O'Neill was a senior vice president of the PMA Insurance Group of Pennsylvania.

**Sidney N. Paly**, M.D. '52, FW '54, HS '58, died in Marblehead, Mass., on September 23 after a brief illness. He was 81. Paly, born in Brooklyn, N.Y., to Russian and Polish immigrants, graduated from Stuyvesant High School for Science in 1943 and spent the war years in the Army Specialized Training Program.

Following the war he graduated from Clark University in 1948. He completed neurosurgical fellowships in Sweden and London. In 1959 he joined the North Shore Medical Center in Massachusetts as one of Salem Hospital's first two neurosurgeons. He served as chief of neurosurgery from 1966 until 1989 and practiced at Salem and Beverly hospitals until his retirement in 2006. That year he was honored by the Essex South District of the Massachusetts Medical Society as a Community Clinician of the Year. Paly served as president of Cohen-Hillel Academy from 1972 to 1973. He also was a recipient of the Dr. E. Augustus Holyoke Memorial Award in 2002, which recognizes professional excellence and service to the community.

**Morton F. Reiser**, M.D., the Albert E. Kent Professor Emeritus of Psychiatry and training analyst at the Western New England Psychoanalytic Institute, died on June 21. He was 87. Reiser served in the U.S. Army during the Korean War and was a research psychiatrist at the Walter Reed Army Medical Center. He joined the faculty of the Albert Einstein School of Medicine, trained at the New York Psychoanalytic Institute and joined the faculty there. In 1969, Reiser came to Yale, where he was the Charles B.G. Murphy Professor and chair of psychiatry until 1986. Reiser's leadership fostered the emergence of the Connecticut Mental Health Center and of the psychiatry department as a preeminent psychiatric program. He advanced an approach to psychiatric illness that linked biological, psychological and social dimensions of illness. He also probed the interface of the psy-



chology and biology of consciousness, particularly altered states of consciousness.

**Thomas R. Shea, M.D.** '58, died on July 21 at his home in Sherman, Texas. He was 75. After graduation Shea was an intern in general surgery at Philadelphia General Hospital and completed his residency in eye surgery at Parkland Memorial Hospital in Dallas. He subsequently settled in Sherman because he felt the city needed an eye surgeon with his training and experience. He served the community as an ophthalmologist for more than 40 years.

**Rajinder S. Sikand, M.D.**, a former assistant professor of medicine and a physician at Yale University Health Services, died on July 23 in Southbury, Conn. He was 83. Sikand was a graduate of the University of the Punjab Medical School in Lahore, Pakistan, and completed his clinical training in the United States and England. His interest in pulmonary physiology led to the publication of several articles on electrocardiography at Yale in the 1940s and 1950s and to a position as visiting scientist at the Max Planck Institute for Medical Research in Heidelberg, Germany, in 1964 and 1965. In 1967 Sikand returned to the United States to serve as a lecturer and researcher at the State University of New York at Buffalo. After 1969, he focused his efforts on research and teaching at Yale and was a physician at Yale-New Haven Hospital. In 1973, Sikand was hired as a physician at Yale University Health Services. In 1975 he joined the Hospital of Saint Raphael in New Haven as co-director of the Pulmonary

Section. After retiring to Southbury in 1993, Sikand read extensively about art, philosophy and history and nurtured a late-life infatuation with golf.

**Nicholas P.R. Spinelli, M.D.** '44, a much-loved physician and medical educator, died on November 30, 2007, in Milford, Conn. He was 86. The son of immigrants from Italy, Spinelli entered Yale College in 1937 and started medical school in 1941. During World War II, he served in the U. S. Army as a neuropsychiatrist in Germany. His medical career of more than six decades included nearly 20 years of community service as an internist in Stratford, Conn. He subsequently became director of medical education at Bridgeport Hospital, where he developed a collaboration with the Yale School of Medicine that included a program in pediatric medicine and recruitment and training of medical practitioners and educators from developing countries. Today scores of practicing physicians credit their careers to his training and mentorship. Spinelli retired from Bridgeport Hospital in 1985 and became director of alumni affairs at the School of Medicine. One of his primary interests was the well-being of students, and early on he recognized the importance of scholarship aid. He helped to establish the Class of 1944 Scholarship Fund, which supports three students each academic year. He remained devoted to his classmates, keeping them in touch over seven decades. Spinelli received numerous awards for his service to Yale, including the Distinguished Alumni Service Award, the Peter Parker Medal and Yale's highest alumni honor,

the Yale Medal. Of all the honors, he would say, the most important came when he was 16 years old. "The greatest gift I got was the letter saying I was accepted to Yale."

**Lee Van Lenten, M.D.** '66, died on September 11 in Rockville, Md., after a brief illness. He was 69. Van Lenten retired in 1995 after 24 years at the National Institutes of Health (NIH), where he served as a health science administrator at the National Institute of Medical Sciences. In the mid-1980s Van Lenten was the administrator of the NIH's Medical Scientist Training Program, which supported M.D./PH.D. candidates. He administered a portfolio of grants in the areas of physiology, trauma and burn injuries. He also published several articles on the radioactive labeling and chemical modification of glycoproteins. Van Lenten received two Commendation Medals and an Outstanding Service Medal during his years at the NIH.

**Walter A. Van Sandt, M.P.H.** '52, died on August 30 in Oakland, Calif. He was 89. During his career Van Sandt was an industrial health and safety engineer, publishing articles on the safety design of welders' helmets, beryllium spectrographs and the calibration of mercury vapor detectors.

**M. Henry Williams Jr., M.D.** '47, died on September 16 in Berlin, Vt. He was 83. Born in New Haven, Williams was a '45W graduate of Yale College. He completed his internship and residency at Columbia University. During the Korean War Williams

was a captain in the U.S. Army and chief of the respiratory section at Walter Reed Army Medical Center. He was a professor of medicine and director of the division of pulmonary medicine at Albert Einstein College of Medicine in New York from 1958 until his retirement, and also served as director of the Chest Service at the Bronx Municipal Hospital Center. Between 1972 and 1976, he was chair of the advisory committee of the Yale Lung Research Center. He was managing editor of *Lung* for many years and served on the editorial boards of *Pulmonary Perspectives*, *Excerpta Medica*, and *Respiratory Times*. He retired from Albert Einstein in 1994 and received emeritus status in 1998.

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## Five years later, adjusting to the 80-hour week

In July 2003, when the national council overseeing medical education limited residents' work hours to no more than 80 per week, medical school faculty and hospital staff around the country saw the intervention as a mixed blessing [See "Recreating the Residency," Fall/Winter 2004]. On the one hand, the Accreditation Council for Graduate Medical Education was responding to public fears that overworked residents might make poor medical decisions; on the other hand, fewer hours on duty carry the risk of less continuity of care.

At the School of Medicine, balancing these two concerns has called for flexibility. "We've had to adapt continually, and we're still adapting," said Rosemarie L. Fisher, M.D., HS '75, associate dean for graduate medical education. Peter N. Herbert, M.D. '67, chief of staff and senior vice president for medical affairs at Yale-New Haven Hospital, acknowledged that sticking to an 80-hour week has been difficult for some programs, particularly those in intensive care units. The hospital has redistributed the workload by taking on more physician assistants and advanced-practice registered nurses. Still, some faculty and administrators worry that residents may feel obliged to do as much work as before—as much consulting with patients, analyzing as many lab results—in fewer hours. Fisher looks to further fine-tuning of the regulations—for instance, pilot programs that incorporate a mandated rest period—to address this potential problem.

In response to the new work rules, some specialties have created more positions for residents: neurosurgery, for example, has expanded from six residency positions to 12. Even in the midst of a long in-hospital shift, evidence of the new rulings is apparent. Areas have been set aside for residents to rest undisturbed, and such arrangements have "probably worked out better for everyone" than the marathon-like conditions that prevailed earlier, said Herbert. "I think the system as a whole has acclimated very well."

—Sandra J. Ackerman



## Medical School Building Demolished

—*Alumni Bulletin*  
January 1958

"About 1860 the Yale School of Medicine moved from the old South Sheffield Hall to a private dwelling at 150 York Street. The school quickly outgrew the facilities offered by these premises, and about 1890 an additional structure was erected in the rear of the building. As the growth of the school continues, new facilities were acquired, including the Anthony N. Brady Memorial Laboratory (1917), and the original building was used entirely for anatomy.

"The building at 150 York Street was occupied by the school until 1922 and will be remembered by many alumni as the original medical school building. Although it was no longer a part of the school, the building continued to stand until December of 1957, when it was demolished as part of the city's Oak Street Redevelopment Project."



## School's Building Projects Earn Recognition

—*Yale Medicine*  
Spring 1983

"Two recent School of Medicine building projects have received awards. The New Haven Preservation Trust presented a Merit Award to the School for its sensitive rehabilitation and creative reuse of the historic Jane Ellen Hope Building. The oldest building on the School's campus, the red brick and rough stone building was built in 1902 as a clinic building. Renovations by architects Alexander Purves and Allan Dehar Associates for its use as a teaching facility were completed last fall.

"First prize for excellence in consulting engineering in the category of mechanical and electrical design was awarded the School by the New York Association of Consulting Engineers for fostering excellence in engineering of its new chilled water thermal storage system. The firm of Meyer, Strong and Jones, P.C., were mechanical and electrical engineers for the facility, which was built to increase the capacity of the Sterling Power Plant in order to provide air conditioning for the Yale-New Haven Medical Center.

"Augustus G. Kellogg, director of facilities planning for the School, was responsible for organization and planning of both projects."



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## WEST CAMPUS NOW PART OF YALE

With the \$109 million purchase in September of what is now known as the university's West Campus, Provost Andrew D. Hamilton, PH.D., is asking faculty and other leaders on campus for their ideas on the best use of the property—the 136-acre former Bayer HealthCare complex that straddles the neighboring towns of West Haven and Orange. Its 17 buildings have 1.5 million square feet of space for laboratories, offices and storage. In comparison, the medical school campus occupies 2.5 million square feet.

“There will be a focus on a number of different areas for planning,” Hamilton said. “The first, of course, is science. The number one priority for the university at West Campus is the opportunity that it gives us to do things in biomedical science that we have not been able to do for lack of space.”

Other ideas under consideration include using the space for storage; displays of collections belonging to university museums, galleries and libraries; and outreach programs to local schools.

“Planning is for the long-term integration of the West Campus into the life—scholarly, scientific and medical—of Yale University,” Hamilton said. “It is not going to be an overflow campus. It is not going to be a place where we put things that don't fit at the university.”

—John Curtis



ROBERT LISAK (2)



Yale's new West Campus includes 550,000 square feet of laboratory space for both biological and chemical research. Medical research is a high priority for use of the new campus.

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# Yale Medicine

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Amtrak

West Campus





#### COVER

Yale's new West Campus, a 10- to 15-minute drive from downtown New Haven, offers the university still unknown possibilities for growth and expansion.

*Cartography by Anandaroop Roy*

#### BACKGROUND

Among the many buildings on the 136-acre West Campus are a warehouse that could store the collections from the university's libraries, museums and galleries.

*Photographs by Matthew Garrett*



GAS

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*By Marc Wortman*

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Harvey Cushing pioneered many techniques in neurosurgery, among them the still-young art of photography as a tool for documenting disease and treatment.

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Senator Hillary Rodham Clinton visited the Child Study Center, where, as a Yale law student, she had worked on child and family issues with medical and law school faculty.

*By John Curtis*

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### On the Web

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On our website, readers can submit class notes or a change of address, check the alumni events calendar, arrange for a lifelong Yale e-mail alias through the virtual Yale Station and search our electronic archive.

## Why primary care draws fewer physicians

Two physicians lamented the decline of primary care in *Yale Medicine* ["Taking the E-ROAD," Autumn 2007]. Having been a primary care doctor for over 30 years, I felt compelled to respond.

Robert P. Gerety, M.D. '52, correctly pointed out that the practice model of primary care began its decline as long ago as 1968. Clearly, primary care never found a comfortable fit within the medical hierarchy despite the continuous public outcry for over 50 years for more general practitioners. American medicine is research-oriented; because primary care is practice-oriented, it has received second-class status and will remain there until the focus of American medicine changes.

But there are many other reasons why primary care is attracting fewer practitioners than ever. Over the past few decades health insurers have overburdened primary care doctors with administrative hassles that consume an inordinate amount of time. Unfortunately, the doctors are not paid for the extra time they put in on administrative work. Some studies estimate that administration consumes about 20 percent of their time. Being underpaid by insurers forces primary care doctors to see large numbers of patients in order to survive. The large number and broad spectrum of patients and diseases greatly increases the physicians' risks of making errors and intensifies their exposure to malpractice suits.

Although Gerety believes that house calls disappeared because people stopped asking for them, I think that doctors stopped making them because they were overburdened in their offices and because the complexity of modern medicine made house calls a

source of medical liability. Clearly, medicine had become too complex for the family doctor to "do it all."

The answer? A new model of primary care is needed—one that takes into account the realities of modern medical practice. The scope of the family doctor has to be redefined. Also, the medical malpractice system needs reforming. It's too adversarial. Finally, health insurers have to be regulated. Their philosophy of profits before patients has completely transformed medicine from a profession into a business; as a result demoralization among doctors is widespread.

Family doctors can make a comeback, but their return will take work on many fronts.

Edward J. Volpintesta, M.D.  
Bethel, Conn.

## Uganda story rekindles memories

As I skimmed the article in *Yale Medicine* ["On the Wards in Uganda," Winter 2008], I felt goose bumps. I had the most fortunate opportunity to work in Mulago Hospital for three months in 2005. I was at the Infectious Diseases Institute (IDI) next door and worked with several colleagues who were at Mulago in IT and nursing. I was sent as part of a global health fellowship with Pfizer to develop a sustainable model for facility management at the IDI. I am now the associate director of facilities for the School of Medicine and find that Yale has a program in Uganda as well. Many of the issues you speak about and pictures in the article bring back vivid memories for me; I truly miss being so close to the patients who need help so desperately. I have many life-long friends in Kampala and such surrounding communities as Nakasera, Mukono and Jinja. I brought my wife and three daughters with me—they will never be the same.

Gary Mandelburg  
Associate Director, YSM Facilities

## Yale should set standards for collaborations

Being familiar with the inspiring story of the heroic doctors and nurses from Yale who risked their lives—and in some instances gave their lives—40 years ago fighting the Lassa fever outbreak in the eponymous village near Jos, Nigeria, I was disappointed by your article titled "On the Wards in Uganda," Winter 2008. Despite your disclaimer early on that the travel of Yale doctors, residents and medical students to a hospital in Uganda was not an "exercise in medical tourism," the subsequent narrative left me feeling that most of the program's benefit fell to the U.S. participants. Much as I sincerely applaud the members of the Yale team for the humanitarian work they accomplished and for the considerable medical service they rendered, it is a pity that the senior physicians did not engage in serious scholarly collaboration with their Ugandan colleagues—by which I mean research and teaching. There is no reason why the United States' partners in international biomedical collaborations between health science centers in this country and their hosts at teaching hospitals in sub-Saharan Africa can't keep several balls in the air at a time: teaching, research, service and humanitarian work. A first-line medical school such as Yale, which I happen to hold in high regard, should be setting the standards for international collaborations.

Robert H. Glew, Ph.D.  
Emeritus Professor of Biochemistry and Molecular Biology,  
School of Medicine,  
University of New Mexico  
Albuquerque, N.M.



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In the fall of 2006 Bayer HealthCare announced that it was closing its plant in West Haven and Orange and putting the 137-acre property on the market. By the following June the university had announced that it would buy the property for a multitude of uses still to be determined. One thing, however, was clear. With almost half a million square feet of pristine lab space at the site, the School of Medicine would have room to expand and advance its programs in medical and biomedical research.

After closing on the property last year, Provost Andrew Hamilton, PH.D., said that the university wanted to avoid turning the space into an attic or basement that would collect the stuff no one knew where to store. In his report ["How the West was won"] on page 18, Contributing Editor Marc Wortman describes how the deal came about and what is guiding the thinking of the university's top officers as they consider the best uses for the property.

On the topic of dusty basement catchalls, a storage room underneath Harkness Dormitory has for decades been home to a treasure trove of whole human brain specimens, X-rays, patient records and photographs that document the career of Harvey Cushing, M.D., the pioneering neurosurgeon. Dennis D. Spencer, M.D., HS '77, chair and the Harvey and Kate Cushing Professor of Neurosurgery, has been working to preserve the collection and make it accessible to a broader audience. Spencer recently published a book with colleagues at the medical school based on this collection. An excerpt from the book and some of the stunning photographs in the collection begin on page 26.

By happenstance, this issue's *Capsule* also includes medical images of historical interest. When medical missionary Peter Parker, an 1834 graduate of the Divinity School and what was then the Medical Institution of Yale College, opened a hospital in Guangzhou, China, he engaged a local Western-trained artist to paint preoperative portraits of his patients to document their disorders. *Capsule* tells the story of Parker and artist Lam Qua and their collaboration.

Finally, in our third feature we report on a visit from Hillary Rodham Clinton, J.D. '73, who is seeking the Democratic Party's nomination for president. On the day before the Super Tuesday primaries in February, Clinton made a campaign stop at the Child Study Center, where she had championed the rights of children and families as a law student.

John Curtis  
Managing Editor

## SECOND OPINION BY SIDNEY HARRIS



"PST-ENDORPHINS. AND THEY'RE PERFECTLY LEGAL."

## yale medicine

*Alumni Bulletin of the  
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TERRY DAGRADI

Yale-New Haven Hospital CEO Marna Borgstrom, left, and medical school Dean Robert Alpern, right, recognized the support of Joel and Joan Smilow toward the construction of a new cancer hospital, which is expected to transform the care of cancer patients.

## Yale alumnus funds new cancer hospital

Former chair of Playtex provides transformational gift to support comprehensive care facility.

Since his graduation from Yale College in 1954, Joel E. Smilow has made donations to his alma mater that have endowed a head football coach position; the renovation and expansion of the Lapham Field House, now called the Smilow Field Center; and five other coaching positions. He also played a key role in the implementation of his class' \$120 million gift to Yale, the largest class gift in the university's history. For his fundraising efforts, including stewardship of the university's "... and for Yale" capital campaign in the 1990s, he received the university's highest honor, the Yale Medal, in 1993.

On October 31, before some 200 guests gathered in the East Pavilion of Yale-New Haven Hospital (YNHH), Smilow, the former CEO, chair and president of Playtex, was thanked for his transformational gift supporting a new \$467 million cancer hospital, now under construction. When it opens in 2009, the comprehensive patient care facility will be known as the Smilow Cancer Hospital.

"We are building one of the finest patient-focused cancer care facilities in the country," said Marna P. Borgstrom, M.P.H. '79, president and CEO of YNHH. "We are very grateful for Joel and Joan Smilow's overwhelmingly generous gift to the cancer hospital, and for sharing our vision of creating a place of hope and compassion for cancer patients."

The new hospital will integrate all oncology patient services at YNHH and the School of Medicine in one building specifically designed to deliver multidisciplinary cancer care, and will feature specialized facilities for faculty physicians and community-based providers to care for patients. The 14-story facility will add nearly 500,000 square feet of new space and 112 inpatient beds, along with expanded outpatient treatment facilities, operating rooms and infusion suites; a specialized women's cancer center focused on breast cancer and gynecologic oncology; and a dedicated floor each for diagnostic and therapeutic radiology.

President Richard C. Levin also expressed gratitude for the Smilows' donation. "This generous gift will have a lasting impact on the lives of countless patients who will benefit from the state-of-the-art clinical care," he said. "We are deeply thankful for Joel and Joan's dedicated support."

According to Robert J. Alpern, M.D., dean of the School of Medicine and Ensign Professor of Medicine, the new cancer hospital will transform cancer care at Yale for both doctors and patients. "Medical school faculty members will be able to offer the latest cutting-edge therapies, integrating improved care—which will be much more comfortable for our patients—with clinical research," Alpern said. "Joel and Joan Smilow are assuring the future of a very important aspect of patient care at Yale."

"Great facilities," Smilow said, "help you attract and motivate outstanding people and make it easier for them to interrelate with one another. That's where the longer-term payoff comes. The immediate benefits—providing a better place for healing and helping tens of thousands of victims of cancer—are obvious. We can only dream about the day when the building isn't needed because we've found a cure for cancer."

—Michael Fitzsosa



## After hard times, a student-run journal rides high again as an online publication

When Milton C. Winternitz, M.D., dean of the medical school from 1920 to 1935, conceived of the Yale system of medical education, a key element was a student-run journal that would serve not only as a place for students to publish their original research, but as a learning tool as well.

*The Yale Journal of Biology and Medicine* (YJBM) made its debut in October 1928. It has been published continuously ever since and remains the longest-running medical journal edited and published by students.

Despite its pedigree, the future of the YJBM in recent years was uncertain. Faced with financial insecurity and the departure of its longtime faculty advisor and the editorial coordinator, publication of the quarterly journal had slowed to a crawl by the summer of 2006.

But thanks to the efforts of student editors determined to turn the journal

around, as well as support from faculty, administrators and alumni, the YJBM is back on track and arguably stronger than ever, with a new editorial coordinator, Karen E. Olson, and a new website. As of last summer, the journal was available on PubMed Central, the National Institutes of Health's digital archive of biomedical and life sciences journal literature.

"The journal is part of the history of the Yale medical school," said Jeffrey R. Bender, M.D., HS '83, the Robert I. Levy Professor of Preventive Cardiology and the journal's faculty advisor. "It's carved into the fabric of the school, one of the pieces that makes the Yale medical school unique."

Bender credits the two editors who served during the current academic year, doctoral candidates Janice Friend (molecular, cellular and developmental biology) and Kristin Patrick (microbiology), with putting the journal back on a solid footing. Their immediate predecessors, medical student Adam Licurse and graduate student Richard Wing, also led the journal through a difficult transition. Their efforts have included aggressively soliciting high-quality papers and instituting a well-organized structure for reviewing manuscripts and responding to contributors. Former Deputy Dean for Education Herbert S. Chase, M.D., made the journal's transition to stability one of his final projects before departing in 2006, and his successor, Richard Belitsky, M.D., has continued to provide financial support.

Bender said the YJBM ties in with the school's educational mission. "It's a chance for students to learn about peer review, which is a huge part of science, and about editing and

scientific writing. It's a superb form of early training."

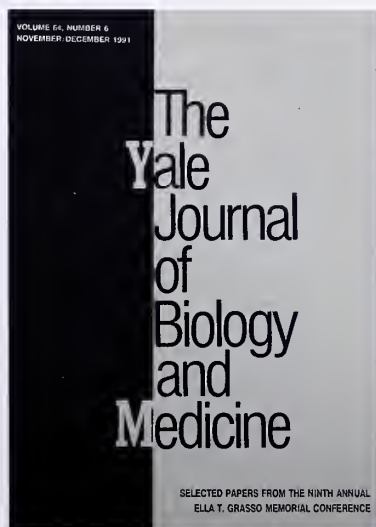
Patrick, who took over as co-editor in chief in April 2007, said she and an editorial team of roughly 10 have worked to broaden the submission pool and seek out the best work. "Our standards have risen significantly," she said. "Good quality-controlled experiments and well-written papers are our long-term goal."

Friend, who is interested in a career in scientific publishing, said her work with YJBM has been invaluable. "I've learned a great deal about what makes a good or successful article, how to effectively solicit articles, what does and does not work in delegating tasks, and tactful communication with authors."

To keep the journal headed in the right direction, board members are exploring ways to promote and advertise it. They've also started recruiting new medical and graduate students to staff the journal. "The goal is to become self-perpetuating, so we don't face the kind of problems we had before," Patrick said.

—Jennifer Kaylin

*For more information about the YJBM, or for guidelines for authors or article request forms, visit [yjbm.yale.edu](http://yjbm.yale.edu).*



Actress and playwright Anna Devere Smith opened her most recent work, *Let Me Down Easy*, at New Haven's Long Wharf Theatre in January. The work includes her portrayals of several members of the medical school faculty.

## Actress-writer returns to New Haven with a drama about the resilience of the human body

About eight years ago, Asghar Rastegar, M.D., deputy chair of internal medicine and professor of internal medicine (nephrology), was deeply influenced by someone he credits with making him a better doctor. That person isn't an older, more seasoned clinician or a brilliant, innovative scientist, but an actress and writer—Anna Devere Smith.

"She finds meaning in the most common response," Rastegar said. "She hears things nobody else could." While physicians typically bring the science of medicine to the healing process, Rastegar said, Smith's compassionate portrayals shine the light on patients' humanity.

In January, Smith opened her latest work, *Let Me Down Easy*, at New Haven's Long Wharf Theatre. It is her second work with strong Yale connections.

Her first came about after Rastegar and Ralph I. Horwitz, M.D., FW '77, then chair of the Department of Internal Medicine, saw one of Smith's performances in 2000. They concluded that medical students and residents would become better doctors if they could observe the way she interacts with people to gather her material. They invited Smith to the medical school as a visiting professor, and after some dogged persuasion, she agreed. Arriving in the summer of 2000, Smith interviewed physicians, nurses, patients and their families. The result was *Rounding It Out*, a 90-minute exploration of the ways in which doctors and patients view and communicate with one another. Her work, which included portrayals



T. CHARLES ERICKSON

of such faculty as Rastegar, Margaret J. Bia, M.D., FW '78, professor of medicine, and Forrester A. Lee, M.D. '79, HS '83, assistant dean of multicultural affairs, was performed twice at the medical school to packed houses.

Since then, Smith has broadened and expanded *Rounding It Out* into a full-blown theatrical production with a broader focus on the resilience and fragility of the human body. That work—*Let Me Down Easy*—includes material from *Rounding It Out* and portrayals of survivors of the Rwandan genocide, cancer survivor Lance Armstrong, a supermodel, AIDS victims in South Africa and a New Orleans physician who assured her hospitalized patients after Hurricane Katrina that rescuers would come for them even as her own doubts increased.

Smith also portrayed one of Rastegar's longtime patients. "I treated her for six years," Rastegar said during a discussion after one of Smith's performances. "What Anna got out

of her in a few hours she had never shared with me."

"I usually don't like being interviewed, but I don't remember her prompting or asking me anything," said Lee, who also joined in that discussion. "That is her special talent. I totally enjoyed the experience."

The recipient of a MacArthur Fellowship in 1996, Smith is credited with creating a new form of theater. She depicts a range of characters in her one-woman shows, using her subjects' own words and minimal props to offer multiple points of view. Her plays have explored such issues as the racial tensions between blacks and Jews in the Brooklyn neighborhood of Crown Heights in 1991 and the Los Angeles riots in the wake of the Rodney King police brutality trial in 1992. Smith's exceptional ability to inhabit the people she is portraying once prompted *The New York Times* to call her "the ultimate impressionist: she does people's souls."

—Jennifer Kaylin



## A new Yale initiative promotes health issues as a tool of diplomacy

In the summer of 2006, Youssra Marjoua experienced, as she puts it, an “aha” moment. Marjoua, a third-year medical student who was researching maternal health in Nigeria, saw how the field intersected with such issues as poverty, housing, education and women’s empowerment. “No one global health challenge is an entity in and of itself,” she said. “You can’t talk about these things without including the whole.”

That epiphany has led Marjoua to focus on a new concept that is gaining currency in public health circles: health diplomacy—the idea that the networks and cooperation developed around health promotion and disease eradication could be leveraged to address problems traditionally considered outside the realm of public health, such as preventing or ameliorating conflicts and war.

Marjoua is one of about a dozen medical and public health students who, under the direction of Kaveh Khoshnood, M.P.H. ’89, PH.D. ’95, assistant professor of epidemiology and public health, have formed the Health Diplomacy Initiative at Yale (HDI). Its aim is to promote dialogue within and beyond the Yale community on the value of having health considerations play a more prominent role in international relations and foreign policy. Khoshnood has received \$10,000 from the MacMillan Center for International and Area Studies to host four health diplomacy seminars during this academic year.

Leading organizations and journals are taking the notion of health diplomacy seriously. The World Health Organization devoted its March 2007 bulletin to the subject of health and foreign policy, and such medical journals as *The Lancet* and *JAMA: The Journal of the American Medical Association* have editorialized in support of health diplomacy. The Aspen Institute devoted a session to global



health diplomacy in a health forum last year, and the University of California, San Francisco, is planning to include health diplomacy in its Global Health Sciences program.

The AIDS epidemic, said Khoshnood, is the landmark event that showed that health threats don’t recognize borders and can destabilize the political, economic and social structures of countries. “AIDS shook up segments of the government that would otherwise be uninterested in health issues,” Khoshnood said.

Along with SARS and avian flu, the AIDS epidemic provides an opening for public health professionals to become significant players in international diplomacy. “We’re seen as being in the ‘caring’ profession,” Khoshnood said. “We come in with all these positive feelings and without any particular political agenda. Why can’t we use this standing as a force for good?”

Marjoua sees health diplomacy as a “novel and great idea.” She’s hoping HDI will explore ways in which health can be used to shape diplomatic decision making for the better. “I’m interested in how the rise in health policy in foreign policy discussions can transform foreign policy.”

Khoshnood shares her enthusiasm. The only downside he foresees is that health diplomacy could be co-opted by governments to advance political agendas. “I hate to think that health would be used that way,” he said. But so far, he believes that the potential benefits are worth the risk.

—J.K.

et cetera...

### YALE JOINS IN HPV VACCINE STUDY

The School of Public Health and the Connecticut Department of Public Health are studying the effects of a vaccine against the leading cause of cervical cancer—the sexually transmitted human papillomavirus (HPV).

Although the body’s immune system clears most HPV infections, some cause precancerous lesions and cervical cancer. In the United States, 6.2 million new infections are diagnosed each year.

The vaccine Gardasil, marketed by Merck, is licensed for females 9 to 26 years old and targets strains of the virus that are thought to cause 70 percent of cervical cancers and strains that cause 90 percent of genital warts. The Yale office of the Connecticut Emerging Infections Program will survey pathology laboratories and health care providers to determine whether new diagnoses of precancerous lesions have declined since the introduction of the vaccine.

Linda M. Niccolai, PH.D., assistant professor of epidemiology, is the director of the project.

—John Curtis

### AWARD FOR DOONESBURY CARTOONIST

The travails of the “Doonesbury” character B.D. as he readjusts to civilian life after losing a leg in Iraq won the comic strip’s creator, Garry Trudeau, the annual Mental Health Research Advocacy Award from the Department of Psychiatry in April. The award recognizes contributions that advance research designed to improve the lives of people with mental illness. The department cited Trudeau’s “humorous but moving” accounts of soldiers returning from Iraq and Afghanistan.

“Trudeau provides millions of Americans with a gut-level appreciation of the impact of post-traumatic stress disorder on soldiers and their families as well as the real opportunities for obtaining help with the readjustment process,” said John Krystal, M.D., professor of clinical pharmacology and deputy chair for research in psychiatry. “He is helping to raise awareness about the importance of PTSD as a national challenge, where investment in treatment and research could have an important and lasting impact.”

—John Dillon

## Yale team implants new prosthetic ankle

A tailor-made prosthetic joint restores function while reducing side effects and amputation risk.

The ankle's position in the hierarchy of artificial joints corresponds roughly to its location at the bottom of the human body; however, a new Yale team—armed with prostheses that better mimic the ankle's structure—aims to raise its stature.

The development of a prosthetic hip in the early 1960s set the modern standard for arthroplasty, followed by advances in other manmade joints. “We know a ton about the knee. We know a ton about the hip,” said John S. Reach Jr., M.D., assistant professor of orthopaedics and the new director of the reconstituted Yale Foot and Ankle Service. “The foot, in medicine, hasn't been looked at much at all. It just hasn't gotten enough respect. The hand is sexier. A hip is easy to put in; it's a

ball and socket,” Reach said. “An ankle is pretty complex. It's small. It's fussy.”

Prosthetic ankles have “lagged behind, but not for lack of trying,” Reach said. They have come a long way from 19th-century efforts to fashion a ball and stem from elephant tusks. The first modern synthetic ankle, developed in the 1970s, was “a basic hinge,” but doctors learned quickly that the human body isn't that simple. The latest generation of prosthetic ankles more closely follows the joint's anatomy. “Now they look more like what God gave you,” Reach said.

The components of the new implant could easily be mistaken for parts that hold a dishwasher together. The implant—made of titanium, chromium and plastic—replaces the top of the talus and base of the tibia. Because the prosthesis is modular, each part is tailored to the patient. In November, Reach performed Connecticut's first total ankle replacement with the new device, called the Inbone, on a 38-year-old man whose life was upended in

a bizarre auto accident one Sunday in 1994.

The patient, Damian Diaz, who lives in the Fair Haven neighborhood in New Haven, lost an eye, a shoulder and his lower left leg in the crash when the wheel came off the axle and burst through the floorboard. He had had 30 surgeries, and though he felt lucky to be alive, the pain in his right ankle limited his walking to no more than a few steps at a time. “My bone was disappearing,” Diaz said. “I could not live with the hurt every day.”

Diaz was a good candidate for total ankle replacement. Trauma patients often develop severe arthritis in the ankle, and though it's less common than hip or knee arthritis, Reach expects the incidence of post-traumatic arthritis to rise—partly because advances in medicine and safety enable younger people to survive these traumas. Airbags protect the upper body, but “people are left with horribly mangled feet,” he said. “When you have pain in the joints, it's bad. It's bone against bone.”

The first lines of treatment for ankle arthritis are painkillers and braces. Another established option is fusing the ankle bones, but that can leave patients with a permanent limp. It can also lead to further arthritis and, perhaps, amputation. A recent review of the literature found that 1 percent of patients who had a total ankle replacement needed an amputation, compared to 5 percent of the fusion patients. Reach expects 85 percent of the new prosthetic ankles to last at least eight years.

Diaz said that so far he's happy with the prosthetic ankle. “I'm waiting to get used to it, but I'm walking,” he said. “It doesn't hurt anymore.”

—John Dillon



Yale physicians performed the first total ankle replacement in Connecticut in November, using a new implant made of titanium, chromium and plastic that is tailored to the patient.



## Scientists report link between high levels of a protein and severe asthma

Late last year two Yale researchers reported a link between severe asthma and a certain protein, YKL-40, which appeared in elevated levels in patients who used rescue inhalers and oral corticosteroids most frequently and required hospitalization for severe attacks.

Now, in findings published in the *New England Journal of Medicine* in April, Geoffrey L. Chupp, M.D., associate professor of medicine (pulmonary and critical care), and Jack A. Elias, M.D., Waldemar Von Zedtwitz Professor and chair of the Department of Internal Medicine, with colleagues at the University of Chicago and the University of Wisconsin-Madison, describe a single nucleotide polymorphism (SNP)—a one-letter change in the genetic code—that correlates with asthma and its severity. The SNP is located in the chitinase 3-like 1 gene (CHIT3L1), the gene that encodes YKL-40.

“The first study demonstrated that YKL-40 was increased and that levels in the blood correlated with levels in the lungs. ... But it was possible that it was just a bystander and not part of the asthmatic pathway,” said Chupp. “This study strongly suggests that YKL-40 plays a significant role in the development of asthma.”

YKL-40 belongs to the family of chitinases and chitinase-like proteins. Chitinases bind to, chew up and digest chitin, a tough natural polymer found in the cell walls of fungi and the bodies and eggs of parasitic worms. Chitinase-like proteins, however, can't digest chitin. YKL-40 and its role in asthma came to light several years ago when Elias and his colleagues found that chitinase and chitinase-like proteins were overexpressed in the lungs of mice with asthma-like diseases. The surprise discovery supported the idea that asthma is an antiparasitic response in a setting where parasites cannot be detected.

Unpublished studies suggest that YKL-40 controls inflammation in the asthmatic airway. “When YKL-40 is there, it keeps inflammatory cells alive longer, and when it is not, they die quickly,” said Elias.

In the future, YKL-40 could help doctors treat asthma by serving as a biomarker, notifying them of patients who are likely to have severe asthma. Pharmaceutical companies might also develop a drug that targets YKL-40 and use serum measurements of YKL-40 to help predict who will respond to these new therapies. “Ultimately,” said Chupp, “blocking the effects of YKL-40 may prove to be a novel and effective way to treat asthma.”

—Hannah Hoag



A podcast of Geoffrey Chupp speaking on this subject can be found on the Yale page on iTunes U. Visit [itunes.yale.edu](http://itunes.yale.edu) or launch iTunes, then select Yale from the offerings under iTunes U. The podcast is included under “Yale Health & Medicine.”

## TECHNIQUE PROMOTES NEW BONE

A novel technique—removing bone marrow and injecting a hormone—promotes rapid formation of new bone in rats, Yale researchers reported in February in the journal *Tissue Engineering*.

“This could radically change the way patients are currently treated for weakened or fractured hips, vertebrae and acute traumatic long-bone fractures,” said senior author Agnès M. Vignery, D.D.S., PH.D., associate professor of orthopaedics and rehabilitation. Existing therapy, which involves surgery and artificial materials, often leads to unsatisfactory outcomes.

Researchers removed bone marrow from thigh bones in mice and then gave them daily injections of bone anabolic agents like parathyroid hormone (PTH). The procedure creates new bone tissue that appears structurally and biologically normal, and endows the targeted bone with improved biomechanical properties at a rate that can't be achieved by injecting hormones alone, Vignery said.

—J.D.

## COLON SCREENING QUESTIONED

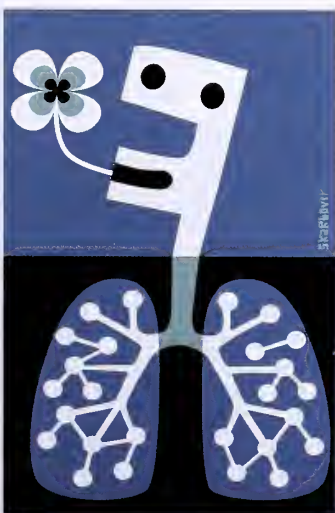
Colorectal cancer screenings for the severely ill may do more harm than good, according to a Yale study published in the *Archives of Internal Medicine* in November.

This finding resulted from a new method of evaluating medical tests that gauges “payoff time”—how long it takes for a test's benefits to outweigh complications and side effects. Researchers led by R. Scott Braithwaite, M.D., assistant professor of medicine, studied 50-year-old men with HIV and 60-year-old women with severe congestive heart failure.

The payoff time for the screenings was up to five years for the men and 2.9 years for the women. But patients with severe congestive heart failure were less likely to benefit—they have a life expectancy of less than 2.9 years. Patients with HIV, however, have a life expectancy of more than five years.

“This issue is becoming increasingly important as pay-for-performance and physician ‘report cards’ encourage clinicians to offer screening to everyone, regardless of individual benefit,” said Braithwaite.

—John Curtis



## Building the case against a rogue gene

Three labs, including one at Yale, independently target a gene implicated in autism.

Researchers know that defects in brain development are to blame for autism, but pinpointing the likely genetic culprits has remained an elusive goal. To put it in mobster terms, there is no single “Tony Soprano gene” corrupting brain development. Instead, scientists believe that multiple “small-time thug genes” gang up to undermine the developing brain. Because the individual effects of these crooked genes may be subtle, it has been hard to get the goods on them.

To help crack the case, Matthew W. State, M.D., PH.D., ’01, the Irving B. Harris Associate Professor of Child Psychiatry in the Child Study Center and of genetics and director of the Program on Neurogenetics, sought to flush out autism-associated genes by focusing on clues from certain affected individuals. Children with autism—or any of a spectrum of related disorders—

have difficulty communicating and interacting with others, exhibit stereotyped behaviors and often suffer from mental retardation and seizures. A small percentage of these children also have a visible chromosomal abnormality. In one such patient State found that the abnormality disrupted the Contactin Associated Protein-Like 2 (CNTNAP2) gene, which encodes a protein that helps brain signals pass from one neuron to another. Based on prior work by himself and others linking contactin proteins to autism spectrum disorders, mental retardation and seizures, State grew suspicious of CNTNAP2.

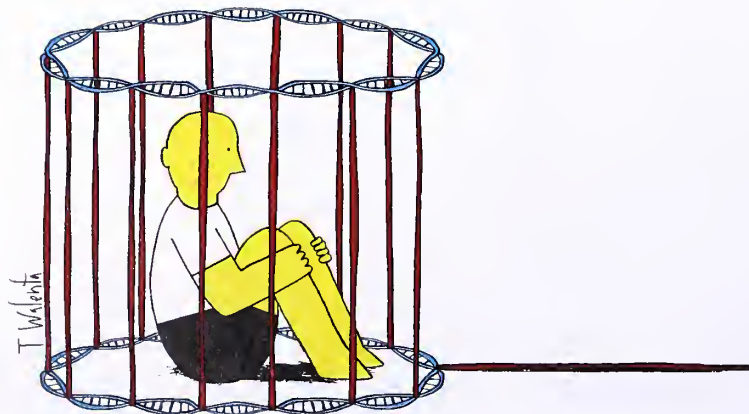
With the help of colleagues in clinical medicine, neurobiology, biochemistry and genetics, State has collected a body of evidence that strongly incriminates CNTNAP2 as one of perhaps many autism accomplices. First, CNTNAP2 is present at the scene of the crime, including all layers of the cerebral cortex within the temporal lobe and within the limbic system, a brain circuit involved in social behavior. Second, CNTNAP2 is found with its binding partner, contactin 2, at synaptic plasma membranes—the gates of communication between

neurons. The third and strongest line of evidence against CNTNAP2 is that sequencing of the gene from 635 autistic patients and 942 controls turned up 13 rare, unique changes to the encoded protein that were found only in autistic individuals. Eight of these mutations are predicted to disrupt the proper functioning of CNTNAP2. One particular mutation was identified in four autistic children in three unrelated families, but not in more than 4,000 chromosomes from controls. “This is strong but not definitive evidence linking this gene with autism,” according to State.

Unbeknownst to each other and to State, two other medical research laboratories—the labs of Daniel H. Geschwind, M.D., PH.D., at the University of California, Los Angeles (UCLA), and of Aravinda Chakravarti, PH.D., at Johns Hopkins University—also fingered CNTNAP2 as causative of autism. Both Geschwind and Chakravarti independently homed in on CNTNAP2 after surveying the genomes of hundreds of individuals and identifying a particular chunk of genetic material that appeared to surface in families with autism. State and Geschwind, longtime friends who met as residents at UCLA, learned of the other’s discovery while catching up during one of their regular phone conversations. Soon after, Geschwind caught wind of Chakravarti’s work through the research grapevine. When the three scientists compared notes, they decided to co-publish their findings to build the strongest case possible against CNTNAP2. “There’s a reason we’re all landing on this gene,” said State. All three papers were published in the January issue of the *American Journal of Human Genetics*.

State thinks that identification of CNTNAP2 may give him the traction he needs to begin to understand the complex biology of autism. “Our hope is that our continued work on understanding the biology of CNTNAP2 will lead to real opportunities for novel approaches to treatment,” said State.

—Kara A. Nyberg





## In the olfactory bulb, new neural stem cells learn to listen before they speak

Like a newborn learning from its parents, a neuron born of neural stem cells in the adult brain must take its cues from its elders if it hopes to mature and survive, according to new research headed by Charles A. Greer, PH.D., professor of neurosurgery and neurobiology.

In findings published in the September 12, 2007, issue of *The Journal of Neuroscience*, Greer and Mary C. Whitman, an M.D./PH.D. candidate in his lab, tracked the development of new neurons in a region of the brain called the olfactory bulb, which receives information about odors from the nose. It is one of the few regions in the adult brain that allows new neurons to be generated and integrated into existing neural circuits.

However, such assimilation is not easy. New brain cells destined for the olfactory bulb have to migrate vast distances from their birthplace, and half of these newborn neurons die between 15 and 45 days after being generated, presumably because they fail to integrate within the neural circuitry.

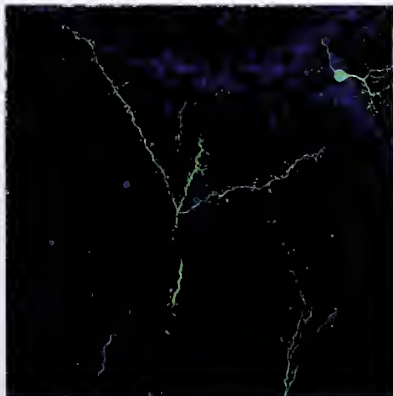
Greer and Whitman found that although the long, spindly arms of new neurons are present 10 days after being generated, they don't form the connections that let them talk to other olfactory bulb neurons until three weeks after birth. Even then, it takes six to eight weeks for the cells to mature and achieve complete integration.

"New neurons are essentially taught to listen before they're allowed to talk," said Greer. He and Whitman found that fibers extending from older neurons located in higher centers of the brain first connect to short arms projecting from the base of new neurons about 10 days after generation. Whitman and Greer believe that these early synapses provide a conduit through which elder brain cells control the development, and ultimately the survival, of new neurons within existing brain circuitry. This ensures that the new lines of communication don't garble pre-existing lines.

According to Greer, these findings have important implications for using adult neural stem cells to replace brain cells lost by trauma or neurodegeneration, such as in Parkinson's disease. "To use stem cells in a transplant strategy, we're going to have to understand the kinds of synapses new brain cells make as well as the kinds of synapses they receive from existing circuits. Our goal is to prevent these cells from being potentially disruptive by getting into the wrong synaptic circuit or by acting in a precocious way," he said.

—K.A.N.

Neurobiologist Charles Greer and his team found that newly born neural cells followed the example of their "elders" in order to survive. This image shows interneurons labeled with a green fluorescent protein at birth so the scientists could follow their migration into the olfactory bulb and their subsequent morphological differentiation and maturation.



CHARLES GREER AND MARY WHITMAN

## BIG ROLE FOR TINY RNA

Tiny RNAs discovered in "junk" DNA play an important role in controlling gene function, Yale scientists reported in the journal *Nature* in October.

A team led by Haifan Lin, PH.D., director of the Yale Stem Cell Center and professor of cell biology, discovered these RNAs, called piRNAs, in mammalian reproductive cells in 2006. The team's findings suggest that piRNAs also exist in nonreproductive body cells and help to control stem cell fate and tissue development. The researchers found that a particular piRNA forms a complex with a protein called Piwi, which then binds to a specific region of chromatin (i.e., the genome) that regulates gene activity.

"This finding revealed a surprisingly important role for piRNAs, as well as junk DNA, in stem cell division," Lin said. "It calls upon biologists to look for answers beyond the 1 percent of the genome with protein-coding capacity to the vast land of junk DNA, which constitutes 99 percent of the genome."

—John Curtis

## VIRUS KILLS BRAIN TUMORS

Yale researchers have engineered a virus that can find its way through the vascular system and kill deadly brain tumors, offering a potential new treatment for cancers in the brain.

Such malignant brain tumors as glioblastomas and metastatic tumors are diagnosed in 22,000 Americans each year. There is no cure for these malignancies. They often kill within months; current treatments usually fail because they don't kill all the cancer cells.

Anthony N. van den Pol, PH.D., professor of neurosurgery, and colleagues reported in the *Journal of Neuroscience* in February that they had transplanted multiple types of human and mouse tumors into the brains of mice and then inoculated the mice with a lab-created vesicular stomatitis virus known as vsvrp30a, a distant cousin of the rabies virus. Three days later, the tumors had been infected by the virus and "were dying or dead," while transplanted normal cells were spared, van den Pol said. "This underlines the virus' potential therapeutic value against multiple types of brain cancers."

—John Dillon

## "A passport to the young"

An alumnus and Harvard professor uses film to teach lessons in law and psychiatry.

Early in the 1990s, psychiatrist and law professor Alan A. Stone, M.D. '55, noticed a change in his law and literature class. When he asked which students had read a certain play or novel—Thomas Mann's *Death in Venice*, for instance—not a single hand went up. Then a student would venture: "I think I saw the movie."

"Young people are incredibly well-informed about film and incredibly ill-informed about literature," said Stone. "And I'm talking about students at Harvard College and at Harvard Law School."

Stone, the Touroff-Glueck Professor of Law and Psychiatry at Harvard Law School, was trying to use literature to connect students with the large themes of psychology and justice. Reading fiction, said Stone, provides "an incredible opportunity to talk about moral issues that are usually approached in law school through such arcane discussions that the moral issues disappear before your eyes." But the approach was no longer working: few students had read Sophocles or Dostoyevsky, Austen or Flaubert. Stone needed, as he puts it, a new "passport to the young."

He found such a passport when fellow law professor Randall L. Kennedy, J.D. '82, asked Stone to write about white racism for the magazine *Reconstruction*. Stone used the 1989 film *Glory* to address the issue. His analysis—that the movie resorted to racial stereotyping in its depiction of the first all-black regiment to fight for the Union in the Civil War—generated numerous letters to the magazine.

By then, Stone had realized that the shared stories of the new generation were not written in the pages of books but, rather, recorded on film. He created a popular course called "Law, Psychology and Morality: An Exploration Through Film." "This allows students to grapple with issues that are the reason they came to law school in the first place: to identify and correct injustice," said Stone. The primary texts for the class include the films

Alan Stone, who teaches law and psychiatry at Harvard, uses popular films to engage his students on moral issues. Young people, he said, are well-informed about film, but ill-informed about literature.



*Do the Right Thing*, *Lone Star*, *Crimes and Misdemeanors*, *The Battle of Algiers* and *Character*.

Unexpectedly, the *Glory* essay proved to be a passport of sorts for Stone himself: the former president of the American Psychiatric Association and residency director at McLean Hospital entered new territory as a film critic. Since 1993, he's written more than 100 reviews for the bimonthly *Boston Review*.

Stone is not drawn to movies for diversion but instead to witness the stories of people thrust into situations that test character, such as Oskar Schindler's insight that he could save the lives of Polish Jews forced to work in his factories.

MIT Press recently published 15 of Stone's reviews in a small volume titled *Movies and the Moral Adventure of Life*. Films reviewed in the book include *American Beauty*, *The Passion of the Christ*, *Pulp Fiction*, *Antonia's Line* and *Henry V*.

A *Los Angeles Times* critic called Stone "a discovery to rejoice at." Stone's film analysis, wrote David Thomson in November, "is not the breathless rave on this Friday's release, but a culmination of the process by which a picture can be seen a few times, mulled over, seen again and then at last written about—as if film writing might be as contemplative, gradual and enriched as any other scholarship."

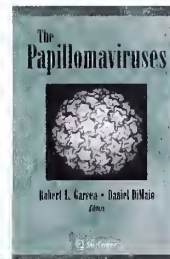
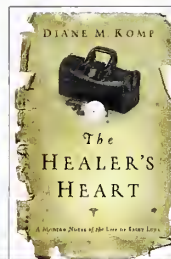
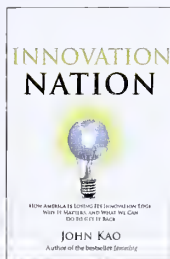
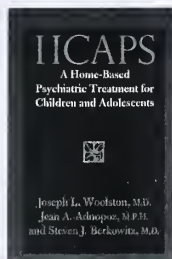
At 78, Stone looks forward to writing many more reviews. (He still sees a few psychotherapy patients, too.) The films he finds worth his attention, he said, are "films that challenge me and make me reflect on the moral adventure of life."

To read reviews by Stone, visit <http://bostonreview.net/onfilm.html>.

—Cathy Shufro

*Bookshelf* focuses on books and authors at the School of Medicine. Send suggestions to Cathy Shufro at [cathy.shufro@yale.edu](mailto:cathy.shufro@yale.edu).





### **IICAPS: A Home-Based Psychiatric Treatment for Children and Adolescents**

by Joseph L. Woolston, M.D. '70, the Albert F. Solnit Professor of Child Psychiatry in the Child Study Center and professor of pediatrics; Jean A. Adnopoz, M.P.H. '81, clinical professor in the Child Study Center, and Steven J. Berkowitz, M.D., assistant professor in the Child Study Center (Yale University Press) Intended for health providers and planners, this book presents a model of mental health treatment for children with serious psychiatric disorders. The IICAPS (Intensive In-Home Child and Adolescent Psychiatric Services) program offers an alternative treatment paradigm for families that has proven effective in reducing the need for inpatient and other institution-based services. The authors conclude with a discussion of some of the unresolved challenges inherent in home-based care for children with serious psychiatric disorders.

### **Innovation Nation: How America Is Losing Its Innovation Edge, Why It Matters, and What We Can Do to Get It Back**

by John Kao, M.D. '77 (Free Press) The author, a former Harvard Business School professor, offers a troubling portrait of the erosion of U.S. competitiveness in innovation in recent years. Kao then takes the reader on a tour of leading innovation centers in Singapore, Denmark and Finland. He proposes a national strategy that would empower the United States to marshal its vast resources of talent and infrastructure in ways that have been shown to produce results.

### **Means, Ends and Medical Care**

by H.G. Wright, PH.D., M.D. '70 (Springer) The author uses the conceptual tools of cognitive science to analyze and critique some of the most basic concepts of contemporary medical care. By uncovering the complex internal structure of human concepts of health and disease, Wright shows the error of assuming that professionals always understand in advance the medical and moral ends involved in any medical situation. The result of this alternative view of mind and medical judgment is a model for reasoning that, although not specifiable by a set of fixed rules, can give realistic guidance for medical decision making.

### **The Healer's Heart: A Modern Novel of the Life of St. Luke**

by Diane M. Komp, M.D., professor emeritus of pediatrics (WaterBrook Press) The author creates a world around a fictional infectious disease specialist named Dr. Luke Tayspill. Luke's story covers the world: his childhood home in Ohio; war-torn Sarajevo; London, where his estranged wife deals with post-traumatic stress disorder; a quiet Gullah island off the coast of South Carolina with unexpected family connections; and ravaged Sierra Leone, where Luke travels after finding an unpublished manuscript written by his beloved grandfather in order to complete a story his grandfather began.

### **Unnatural History: Breast Cancer and American Society**

by Robert A. Aronowitz, M.D. '85 (Cambridge University Press) The book traces the changing definitions and understandings of breast cancer as the author explores the experience of breast cancer sufferers; clinical and public health practices; and individual and societal fears.

### **The Papillomaviruses**

edited by Daniel C. DiMaio, M.D., PH.D., Waldemar Von Zedtwitz Professor of Genetics and professor of therapeutic radiology, and Robert L. Garcea (Springer) This volume offers a complete description of the current state of knowledge about the biology of the papillomaviruses. It evaluates the risk to humans posed by infection with human papillomaviruses (HPV), including cervical cancer, the second most common cancer in women worldwide. This book also considers the possible involvement of HPV infection in cancers in other body sites.

### **Alzheimer Disease and Other Dementia Types: A Practical Guide, 2nd ed.**

by Marc E. Agronin, M.D. '91 (Lippincott, Williams and Wilkins) This guide focuses on assessment, diagnosis and management of the complex array of dementia disorders seen in older patients. The author addresses all the subtypes of dementia and such associated psychiatric conditions as agitation, psychosis and depression. This edition features a new chapter on mild cognitive impairment as well as expanded coverage of Alzheimer disease and risk factors. Other chapters offer advice on caregiver support and legal and ethical concerns.

### **Help Your Child or Teen Get Back on Track: What Parents and Professionals Can Do for Childhood Emotional and Behavioral Problems**

by Kenneth H. Talan, M.D., FW '71 (Jessica Kingsley Publishers) This book shows the reader how to deal with a child who may have an emotional or behavioral problem. It describes the red flags and disruptions in development that cause concern; offers solutions that parents can implement at home; and advises when they should seek professional counsel. For parents who decide to seek professional intervention, the author explains treatment options that include psychological treatment, psychiatric medications and complementary and alternative therapies.

### **Epidemiology, Biostatistics and Preventive Medicine: With STUDENT CONSULT Online Access, 3rd ed.**

by James F. Jekel, M.D., M.P.H. '65, professor emeritus and lecturer in public health, David L. Katz, M.D., M.P.H. '93, associate professor (adjunct) of public health, Joann G. Elmore, M.D., M.P.H. '92, and Dorothea M.G. Wild, M.D., M.P.H. '03, lecturer in public health (Saunders) This text contains the latest information on health care policy and financing, infectious diseases, chronic disease and disease prevention technology. It also includes 350 USMLE-style questions and answers, complete with detailed explanations of the correctness or incorrectness of various choices.



### Molecular Neurology

edited by Stephen G. Waxman, PH.D., M.D., the Bridget Marie Flaherty Professor of Neurology, Neurobiology and Pharmacology and chair of neurology (Elsevier Academic Press) *Molecular neuroscience is revealing important clues to the pathogenesis and pathophysiology of neurological diseases and to the therapeutic targets that they present. Waxman explains the ways in which researchers use their understanding of the molecular basis of neurology to develop new therapies. The book highlights the principles underlying molecular medicine as related to neurology and presents up-to-date principles and disease examples. The author also reviews the concepts, strategies and latest progress in the field.*

### Ayurveda: A Comprehensive Guide to Traditional Indian Medicine for the West

by Frank John Ninivaggi, M.D., FW '77, assistant clinical professor in the Child Study Center (Praeger Publishers) *Ayurveda is the traditional medical system of India, used for thousands of years as a source of proactive health measures as well as integrated healing strategies for body, mind and spirit. The author explains the ways in which Ayurveda can promote physical and mental health by targeting such threats to health as acute and chronic stress, pre-diabetes, metabolic syndrome, obesity, coronary artery disease and diabetes.*

### The Bipolar Disorder Answer

**Book: Answers to More Than 275 of Your Most Pressing Questions** by Charles Atkins, M.D., lecturer in psychiatry (Sourcebooks) *This book describes bipolar disorder, a condition that causes abnormal shifts in a person's mood, energy level and ability to function. The book provides answers to common questions and serves as a reference for people with the disorder as well as for their loved ones.*

### Cardiovascular Molecular Imaging

edited by Albert J. Sinusas, M.D., professor of medicine (cardiology) and diagnostic radiology, Robert J. Gropler, M.D., David K. Glover, M.E., and Heinrich Taegtmeyer, M.D., PH.D. (Informa Healthcare) *This book is a guide to targeted molecular imaging of the cardiovascular system. It covers new methods for the analysis and management of cardiovascular pathophysiology and explains new technologies for analyzing cardiovascular receptors; reporter probes and gene expression; and vascular structure and biological processes that affect the heart and associated vessels.*

*The descriptions above are based on information from the publishers.*

**SEND NOTICES OF NEW BOOKS TO** Cheryl Violante, Yale Medicine, 300 George Street, Suite 773, New Haven, CT 06511, or via e-mail to [cheryl.violante@yale.edu](mailto:cheryl.violante@yale.edu)

## With online videos library patrons learn the latest in how to do research

The growing popularity of videos has changed the public face of an institution not generally known for being trendy: the medical library. The website of the Harvey Cushing / John Hay Whitney Medical Library now offers 51 videos—and counting—but not of celebrity gaffes or political satire. Instead, they show library patrons how to do research online.

"The next generation of learners is more visual than textual," said Lei Wang, M.L.S., an instructional design librarian at the library, referring to what's sometimes called the YouTube generation. "They expect video from you." Video sharing sites, such as YouTube, said Wang, have changed online norms even among people who use the library. Rapid changes in technology, he said, have made possible fast access to videos online. "The Web infrastructure is allowing large amounts of data to be transferred to personal computers."

Over the course of a month early this year, Wang made 10 instructional videos that provide in-depth instruction in using the new OVID search interface. Topics range from such basic skills as accessing OVID and choosing a database to such specialized topics as using OVID to conduct comprehensive literature reviews. Wang limits each segment's running time to about five minutes. "People's attention spans are pretty short," he said. Sometimes things change so fast that he has to revise an instructional video even before he has completed it. Wang keeps up with the latest by attending conferences.

Wang believes that if videos allow patrons to use the library's resources more easily, they're worth the effort. The library spends a lot of money on databases, such as those on the OVID platform, and on such knowledge management tools as RefWorks. "We pay for these products, and we want them to be used."

—Cathy Shufro

To access instructional videos, visit <http://www.med.yale.edu/library/education/guides/> or visit the home page of the Harvey Cushing/John Hay Whitney Medical library and choose "Guides & Tutorials."

*In Circulation* focuses on activities at the Cushing/Whitney Medical Library. Send suggestions to Cathy Shufro at [cathy.shufro@yale.edu](mailto:cathy.shufro@yale.edu).





GEORGE AGHAJANIAN

**LSD, mescaline and brain receptors**

That the brain has specific receptors for various drugs is now an established fact, but it took a long, strange trip by George K. Aghajanian, M.D. '58, HS '61, FW '63, a pioneer in neuropharmacology, to turn that theory into a certainty.

In 1958, for his thesis research, Aghajanian said at a Leadership in Biomedicine lecture in January, he compared the effects of mescaline and LSD in animals and speculated that the receptors mediating their effects were closely linked. But he faced a largely dubious senior faculty in psychiatry. "There was the belief at the time that the brain was not relevant to psychiatry," he said.

In the ensuing decades, Aghajanian, the Foundations Fund Professor of Psychiatry and Pharmacology at Yale, showed that LSD and related hallucinogens promote "spill-over" of the excitatory transmitter glutamate from synapses in the prefrontal cortex, causing miscommunication between adjacent groups of neurons. His research helped pave the way for a new generation of antipsychotic drugs, which target brain receptors that modify the release of glutamate. "It just took 50 years," he said. "I hope that the students who go on to become physician-scientists have better luck than I did—or better timing."

—John Dillon



FRANCIS S. COLLINS

**Genomics and personalized medicine**

As the sequencing of the human genome approaches its fifth anniversary, Francis S. Collins, M.D., Ph.D. '74, FW '84, asked how it will affect the practice of medicine. Will it be used to save lives? Or will the information be used to deny people jobs or health insurance? In a talk on March 27 at The Anlyan Center, Collins set out two hypothetical scenarios to illustrate how genomics might be used or ignored.

Collins, director of the National Human Genome Research Institute at the National Institutes of Health, outlined his first scenario: in 2015, a patient he calls Betty chooses not to have her genome sequenced because she fears genetic discrimination. She never learns about her family history of heart disease and her doctor thinks genetics is irrelevant to clinical practice. Betty gains weight and develops high blood pressure, but side effects keep her from taking her medication. Ten years later, Betty dies from a heart attack.

In Collins's second scenario, Betty receives all the benefits of genomics, including individualized treatment, and lives into the 22nd century. Collins implored his audience to make a commitment to personalized medicine and "SAVE BETTY!"

—Alix Boyle



HOWARD TARAS

**Breakfast matters, even if it's just a doughnut**

Conventional wisdom took a recess when Howard Taras, M.D., told an audience at pediatric grand rounds in February about his research into the effects of nutrition on a child's school performance.

Breakfast is important, said the professor of pediatrics at the University of California, San Diego, but whether kids eat fruit or a doughnut doesn't affect academic achievement. "For performance it doesn't really make a difference," he said, adding that "a student with poor nutritional intake at each breakfast is more likely to have fewer productive years in life with which to utilize his or her education."

His and other studies have also found that sufficient physical education "doesn't really change the outcome of their grades," Taras said. The research found, however, that children perform better on exams taken right after recess.

Poor sleep is "the most ignored" threat to school performance, said Taras, especially for children who have sleep apnea. He supports later starting times for the school day, adding that kids "aren't going to bed later" to take advantage of them.

Administrators and students' doctors need to communicate better with one another in order to manage children with chronic conditions, he said.

—J.D.



JOHN EYER

**Vaccines and the flu virus of 1918–1919**

In 1918, with the world in the grippe's grasp, researchers were desperate for a way to stem the pandemic. They turned to new vaccines, all of which mistakenly targeted bacteria instead of viruses, said John Eyer, Ph.D., a medical historian at the University of Minnesota who gave the George Rosen Memorial Lecture at the Beaumont Medical Club in February. Medical journals and the lay press touted the vaccines' efficacy even though experts—including the American Public Health Association (APHA)—harbored doubts.

By 1919, "the tide of professional opinion began to change" about the accuracy of the results, said Eyer. In retrospect it became clear that the early trials were rife with problems: poor selection criteria leading to biased samples and "no concern about who was a proper subject," Eyer said.

"American physicians certainly were inexperienced at conducting trials," Eyer said. They conducted them when the nation was "desperate" for relief from the pandemic, but the profession had no standards for what constituted an adequate vaccine trial.

The APHA established stricter standards for vaccine trials in 1919, though randomized trials wouldn't become common practice until decades later.

—J.D.

## **An artist and a medical missionary collaborate**

Together, Peter Parker and Lam Qua produced an enduring record of medical care in China in the 1800s.

By Melinda Tuhus

65





In 1834, within a month of his graduation from the Medical Institution of Yale College and his ordination as a Presbyterian minister, Peter Parker departed for China as a medical missionary. A year after his arrival in Guangzhou he started a hospital to treat eye diseases and began a collaboration with portrait artist Lam Qua through which both men would leave their mark on medicine.

Parker went to China with the hope that by healing his patients' bodies he would open the door to their souls. British and American patrons provided financial support for his Ophthalmic Hospital, over which he hung a sign that read in Chinese, "Hospital of Universal Love," and which provided medical services at no charge. In addition to treating diseases of the eye, Parker also practiced surgery, including the removal of tumors. Today he is best known for introducing anesthesia—sulphuric ether—to China.

Down the street from Parker's hospital was the studio of Lam Qua, who had learned the Western style of portraiture from George Chinnery, an English painter who had settled in China. Qua was the first Chinese portrait painter to be exhibited in the West, a master who made his name and his fortune painting the wealthy—both local and expatriate—of the city of Guangzhou and beyond. Parker hired him to document the disfiguring tumors that afflicted many of his patients. The two men worked together for close to 20 years.

Most of Qua's subjects appear in profile or facing forward, draped in dark clothing and presenting a serene visage. Yet the subject matter is likely to evoke not serenity, but fascination and perhaps horror. One painting shows a man with a tumor roughly the size, shape, and positioning on the body of a cello being played, while many others depict women with grotesquely deformed breasts. Qua produced 114 paintings for Parker, 86 of which are housed in the Peter

Parker Collection in the Cushing/Whitney Medical Library, along with the physician's case notes.

When Parker traveled to the United States to promote his mission, he brought these portraits with him. Ultimately, he left them to the Department of Pathology at the medical school, which in turn gave them to the Medical Historical Library. The paintings—oil on board—are now stored in vertical shelving in the historical library. Preservation librarian Sarah A. Burge, M.I.S., said that pulling the paintings out for viewing is hard on them and makes it impossible to view the collection as a whole. Still, she said, "Researchers come from all over the world to look at them. It's a heavily used collection."

With support from the Helen Melton Book Preservation Fund, efforts are under way to conserve not only the original paintings, but also Lam Qua's preliminary watercolor studies on pith paper. "It's like rice paper," Burge said. "They're extremely fragile, and in their current state they cannot be handled or viewed."

Photographs of the paintings were recently placed online in order to make them accessible to a wider audience. Does the fact that the works can now be viewed electronically reduce the number of people coming to view them at the library? If anything, Burge said, she thinks their existence on the Web has spurred interest. "People find out that we have the collection," she said, "and then they want to see it in person."

The collection of oil paintings is available online at <http://www.yale.med.edu/library/subjects/digital.html>.

Melinda Tuhus is a freelance writer in Hamden, Conn.

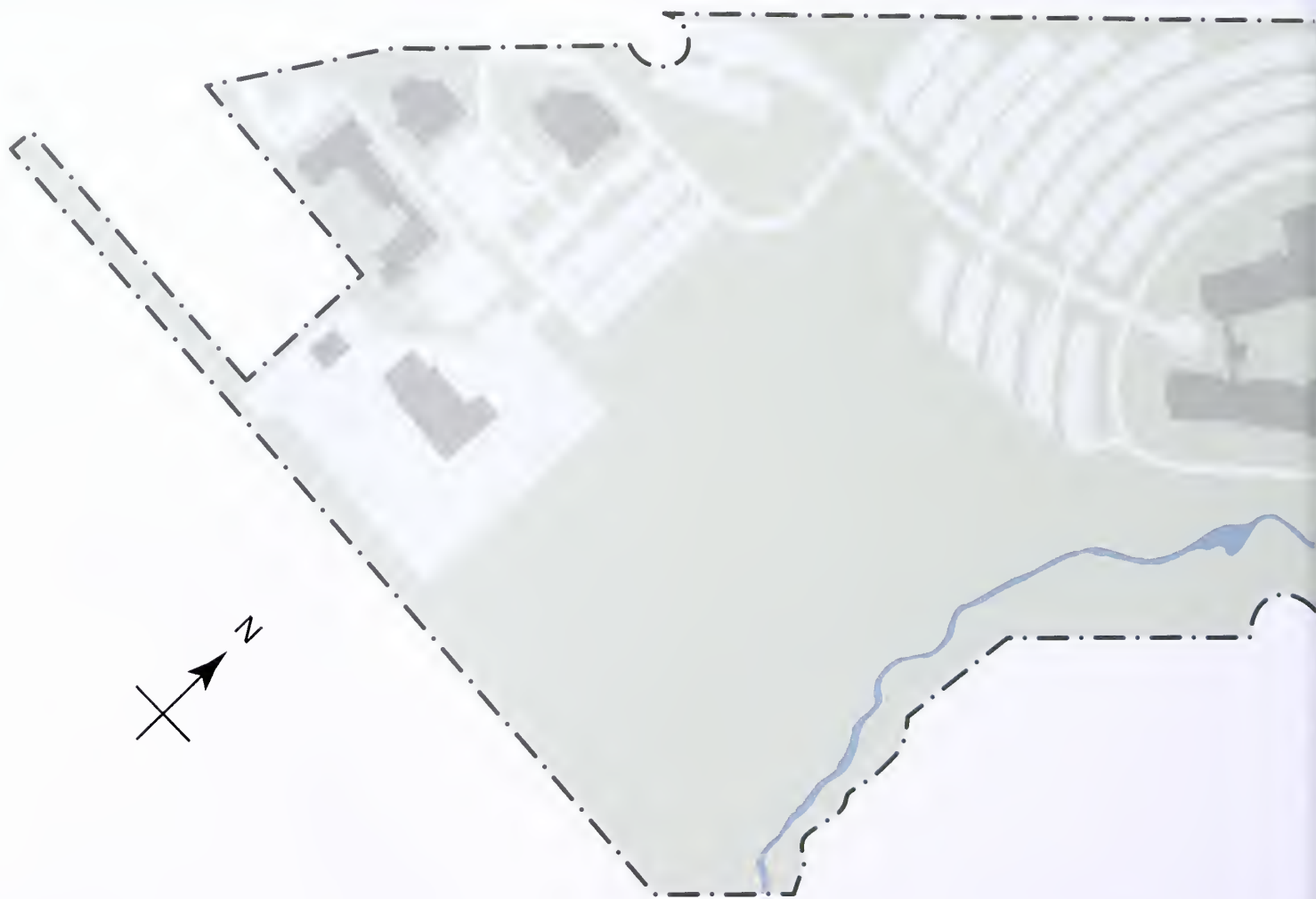


**OPPOSITE AND ABOVE** After medical missionary Peter Parker opened his Ophthalmic Hospital in Guangzhou, China, he commissioned the artist Lam Qua to document his patients' disfiguring tumors. The portrait at left shows a young boy with a tumor of the right chest wall. The portrait at right shows a patient after the amputation of his arm. Parker described this case in a journal entry in November 1836: "At 11 a.m. the patient was seated in a chair supported around the waist by a sheet. The time did not exceed a minute from the application of the scalpel till the arm was laid on the floor. ... The patient made a good recovery." Qua produced 114 paintings for Parker; 86 of which are in the Peter Parker Collection in the Medical Library, along with the physician's case notes.

# How the West was won

By Marc Wortman

Cartography by Anandaroop Roy | Photographs by Matthew Garrett



Laboratory Building



Other Building



Greenspace



Sidewalk and Parking

West Campus is 1 mile long



The acquisition of the former Bayer HealthCare facility, now known as West Campus, resolves long-standing space needs and opens undreamed-of opportunities. The new campus will transform Yale — but how?

Interstate 95



Amtrak

On Thursday, November 9, 2006, much of the nation was digesting the news about the dramatic swing in party control of Congress after the midterm elections two days earlier. In his office at Woodbridge Hall, however, Yale President Richard C. Levin had some startling local news in mind. Bayer HealthCare had announced that morning that it was shutting down its vast North American research headquarters straddling the border of the neighboring towns of West Haven and Orange. The disappearance of what had been the largest employer and taxpayer in the two towns immediately west of New Haven seemed to spell economic disaster for the region. But when Levin learned the news about the 136-acre site where nearly 3,000 people had once worked, he leaped up from his desk. "What an opportunity!" he exclaimed. "This is a once-in-a-lifetime opportunity for us." Levin wanted to purchase the site, potentially changing the face and character of Yale University forever. But first he did what he could to find another buyer for the property.

For the past decade Yale has been building at a pace that rivals the near-complete campus reconstruction of the 1930s, which gave the university most of its present architectural face. Much of the recent construction binge has focused on the sciences, particularly biomedical research. In just the past three years, several major new academic buildings have opened as part of a billion-dollar plan to bolster science research and teaching. For instance, the 457,000-square-foot Anlyan Center, which opened in 2003, and the 120,000-square-foot Amistad Street building dedicated last October have increased the medical school's laboratory space by nearly half. When the new 14-story Smilow Cancer Hospital at Yale-New Haven Hospital opens in 2009, it will unite all of Yale Cancer Center's clinical services under one roof. On the main campus, numerous new science buildings affiliated with the medical school have opened or will open soon, including new chemistry and environmental studies buildings. Plans also call for significant additional construction, renovation and expansion of science facilities within the medical center.

Despite this building frenzy, Yale still lags well behind its principal competitors in both the size and growth of its science facilities. That's in part because Yale remains largely landlocked within its dense New Haven surroundings, leaving scant room for outward expansion. And where there is room, such as at the medical school, construction costs have limited expansion. Yale, and in particular its medical school, continues

to garner grant funding at a high rate on a per-faculty basis—it is presently third among American medical schools—but as a whole the university has fallen behind rivals in capturing its share of available resources for scientific research, dropping to 19th place in total government funding for science. The medical school is in 6th place in total NIH funding. "The quality density is just as good as the top competitors," says medical school Dean Robert J. Alpern, M.D., Ensign Professor of Medicine, "but having less research space and thus less research than some of the other top schools limits the impact of our science programs."

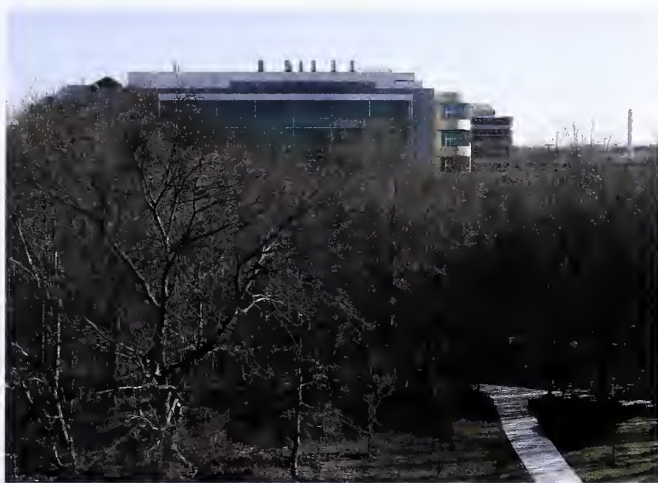
Levin asked Alpern what the medical school might do with the Bayer site were Yale to buy it. The possibility, though, was "so sensitive," says Levin, that he made only Alpern and the University's officers and trustees aware of his interest in the property. Alpern quickly put together a list of possible uses, and, Alpern says, "The list was pretty long." That was no surprise to his colleagues. Says Daniel C. DiMaio, M.D., PH.D., vice chair and Waldemar Von Zedtwitz Professor of Genetics, who consulted with Alpern about the former Bayer campus: "The rate-limiting factor here is space, not ideas or money."

Room to grow—with ready-made laboratory facilities—suddenly appeared like a vision on the western horizon. About a 15-minute drive from downtown New Haven, the Bayer site's 17 buildings include 450,000 square feet of state-of-the-art research laboratory space in four modern buildings, much of it either recently built or renovated and some of it never even fully occupied. Along with that, the campus comprises nearly 1 million additional square feet of modern offices, warehouses, and miscellaneous other spaces, including a day-care center, a power plant and surface parking for nearly 3,000 cars with easy access to Interstate 95. The site also has a library, a 250-seat auditorium, multiple seminar and conference rooms, modern computing and telecommunications facilities and a 200-seat cafeteria and other food service areas.

The addition of what would amount to an entirely new third science campus, albeit one outside Yale's hometown of three centuries, would, says Levin, offer "great potential to lift Yale science to the very top rank" among research universities. But he had to keep quiet.

Levin may have coveted the property, but Yale could not show its interest. Sitting in his Woodbridge Hall office, Levin says, "It was important for the region to attract another pharmaceutical firm." Not only might a large private corporate





Yale's new West Campus, a former pharmaceutical research and manufacturing facility, covers 136 acres and has 1.6 million square feet of floor space. Clockwise from top left, the Oyster River and a small forest bisect the property; 600,000 square feet of manufacturing and warehouse space to hold and display collections from the university's libraries, museums and galleries; a five-acre parcel with several nature trails; and 3,000 parking spaces.

tenant make immediate use of the facilities and rehire laid-off employees, "It was consistent," he says, "with our long-standing plans for contributing to a region with a strong science-based economy," through Yale's own biomedical research and efforts to build biotechnology companies based on university discoveries. Yale would need to sit on its hands and wait to see what new owner might emerge.

### A productive corporate campus

For more than four decades, a pharmaceutical firm occupied at least part of the West Haven-Orange site. Bayer HealthCare, a division of the German pharmaceutical giant Bayer AG, and its predecessor at the West Haven site, Miles Laboratories, had invested nearly \$1 billion there since first acquiring the former pig farm in 1965—and then added adjacent property when a multiplex theater complex closed and moved across the street. Eventually the campus grew to be Bayer's largest site in the United States and the company's North American headquarters.

The site had been a productive one for Bayer. Its scientists discovered and developed the kinase inhibitor sorafenib there. Last year the Food and Drug Administration approved the drug as a treatment for renal cell carcinoma, a deadly form of advanced kidney cancer, and it is now marketed as Nexavar. In addition to research, Bayer also used the site as a manufacturing center. Billions of tablets of the popular heartburn treatment Alka-Seltzer were once sent out from West Haven to the American market. More recently, crews worked around the clock under tight security churning out Cipro tablets, the trade name of the antibiotic ciprofloxacin, in response to the huge demand for stockpiles of the drug following the 2001 anthrax attacks in Washington, D.C., and elsewhere.

When Bayer put the property on the market, Connecticut Governor M. Jodi Rell formed a commission to find a buyer. Levin designated Bruce D. Alexander, Yale's vice president for New Haven and state affairs and campus development, to serve on the commission, and Yale threw its weight behind the effort to attract a large pharmaceutical corporation. But with much of the pharmaceutical industry in the midst of painful restructuring and contraction, "there was not a glimmer of interest," recalls Levin. The only bidders for the site, says Alexander, were real-estate developers who would have leveled it to make room for retail and commercial complexes. "That would have been a huge loss," says Alexander. Levin decided it was time to move.

Yale entered the bidding against 14 other potential buyers but walked away with the prize in late June 2007. The final price, revealed at the closing in September, was astonishingly low: \$109 million plus payments in lieu of taxes to West Haven and Orange amounting to \$600,000 annually, and a million-dollar contribution over the next few years for training assistance to New Haven-area middle and high school science teachers. To put the purchase price in perspective, construction

of The Anlyan Center alone cost about \$176 million. At the approximately \$700-per-square-foot cost of constructing new biochemistry laboratory space—plus the other buildings—says Alexander: "You could easily value the property at six or seven times what we paid for it in terms of its replacement cost," far more if it were possible to build that much new space on the Yale campus in New Haven. And that does not count the costly equipment Bayer left behind—including scores of chemistry and biology safety hoods—nor the land itself. According to Levin, the site could accommodate nearly double the number of structures at present—"without touching the environmentally sensitive portions," including about 20 acres of wetlands.

Speaking about the site, which Yale now officially calls the West Campus, Levin becomes animated, leaning forward in his chair, his voice rising with excitement. "This has transformative potential, frankly—only some of which we can envision today," he says. "We've given our successors an opportunity to dream in ways we can't imagine today."

DiMaio, who is also the scientific director of Yale Cancer Center, hopes to see a long-envisioned cancer biology research center established there, bringing together an interdisciplinary oncology team able to perform genetic analyses of tumor cells and then design novel targeted pharmaceutical treatments for them. A student at Yale College when the first women entered as undergraduates, DiMaio believes that the acquisition and development of the West Campus has the potential to be the most significant event at Yale since coeducation. "If we don't seize this opportunity and transform Yale, we will have failed."

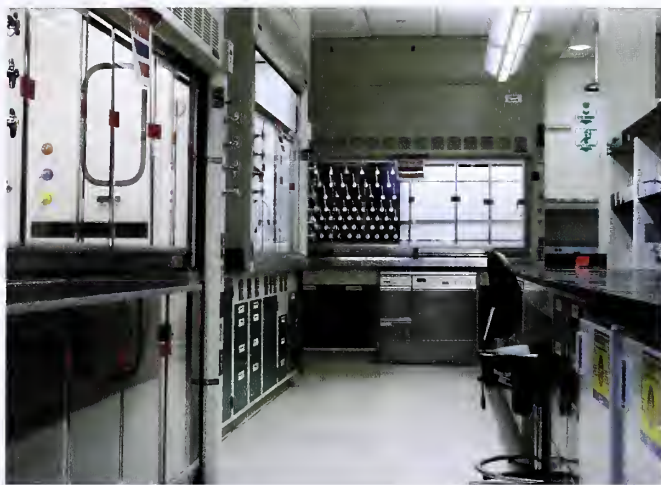
### Transforming Yale

The purchase happened quickly. Only a handful of people even knew it was being considered. Suddenly, an entirely new western territory opened up for Yale. University Provost Andrew Hamilton, PH.D., says, "This is a quantum opportunity and leap for Yale." But what is Yale leaping into?

Over the past year, Levin, Alpern and Hamilton have met frequently to explore ideas for the new campus. They have also held meetings with many faculty leaders, and a retreat for medical school departmental chairs focused on the new site. An emerging theme from their discussions was not simply to transfer existing laboratories, people and administrative structures from the overcrowded New Haven campus to the empty West Campus. "We need to guard against allowing the campus to become a spillover space for existing programs," insists Levin. Rather, he wants the space to be devoted to entirely new projects. "This allows us to think about new structures and new forms of science appropriate for the 21st century."

"We are not going to rush into decisions," Hamilton says; however, a few governing principles have emerged. "The West Campus will raise the visibility and impact of Yale science. It will not be an extension of existing Yale activities but





West Campus has 450,000 square feet of space for biology and chemistry laboratories in several buildings at the parcel's eastern end. The laboratory buildings also have offices and conference rooms. The property's purchase price included scientific equipment stored in warehouses.

Yale has engaged an architect to draft plans that will introduce the neo-Georgian and Gothic Revival styles of the Yale campus and minimize the corporate office park ambiance. Preliminary plans call for shifting some existing roadways, demolishing some buildings and creating more courtyards.



will represent something distinctly different in organization and the way activities are planned." Says Alpern: "This is an opportunity to grow a lot more, but also an opportunity to focus on cutting-edge areas."

According to Alpern, the trio looked at multiple models for campus expansion. The one that best fit their thinking was the Whitehead Institute for Biomedical Research in Cambridge, Mass. Its faculty members have teaching affiliations with the Massachusetts Institute of Technology. Whitehead's director, David C. Page, M.D., likens the institute to an artist's colony in which established and emerging scientists have the freedom and resources to pursue high-risk, novel and interdisciplinary research. Page, a renowned genetics scientist and MacArthur Foundation "genius award" winner, touts the freedom Whitehead scientists have "to pursue new ideas while working in a collaborative environment. Our modest size and strong financial position allow us to move quickly to exploit scientific opportunities."

Alpern expects that the West Campus will be organized around a series of new Whitehead-like interdisciplinary institutes, each centered on "a spectacular faculty member who will then recruit three to five other scientists for his or her institute." Several core facilities will also be established there, drawing on Yale's existing strengths and the laboratory configuration left by Bayer. These include a high-throughput genetic screening facility and a high-throughput chemistry laboratory—drawing on the Department of Chemistry on the main Yale campus—with drug screening and development capabilities not presently available on the medical campus.

Yale, Alpern says, has already begun recruiting new faculty members for the first of the proposed institutes—cell biology, major psychiatric disorders and cancer biology. "The

key," he says, "is to attract exceptional investigators from the start. If they're weak, the value of the real estate goes way down." Levin says that present faculty with innovative ideas for new interdisciplinary research programs may also move there.

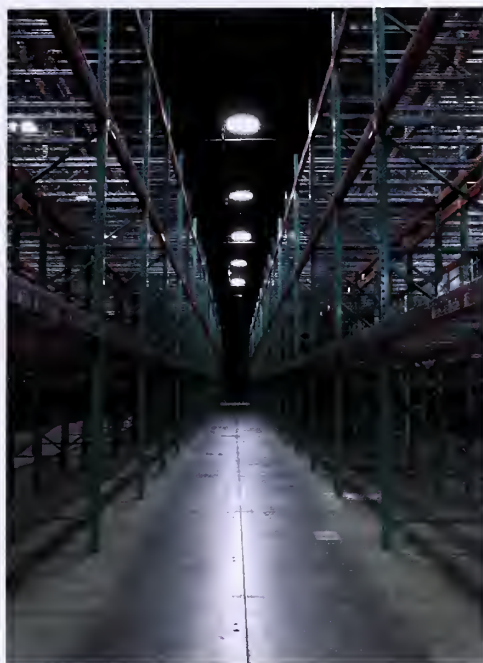
Levin, Alpern and Hamilton emphasize that the West Campus' facilities will link up with the entire university. Among those links will be a new \$1.4 million high-speed optical fiber connection. According to Steven M. Girvin, Ph.D., deputy provost for science and technology, that will enable the university to move all current nonresearch computing functions from the Information Technology Services center at 155 Whitney Avenue (to be razed to make way for a new School of Management campus) to the existing data center on the West Campus. The new cables will also allow a big growth in research computing capabilities. "Eventually we will need new computing space on the West Campus for high-performance scientific computation, as we are running out of space on the main campus," Girvin says.

The West Campus' acres of manufacturing and warehouse floor space will be devoted to displaying, conserving and storing the thousands of artworks and other valuable collections presently warehoused around the region. Stored library and archival materials and preservation services may also relocate there. Alpern says, "It would make the campus special if activities there include the arts." Among the ideas being discussed are creating a contemporary art museum "like a Tate Modern," he says, comparing it to the popular and massive art gallery housed in a former power station in London. "That would give the campus a Yale flavor."

#### A Yale feel

Right now, the 15-minute drive from the Yale campus in New





Thousands of works of art as well as archival materials and library preservation services may find a new home in manufacturing and warehouse space at West Campus. The site could also house a new modern and contemporary art museum. Its science laboratory buildings include ample space for keeping animals.

Haven to the West Campus transports visitors to a completely different world. The 136 fenced-in acres—equivalent to about a third of Yale's total New Haven campus acreage—run for close to a mile alongside the roaring cataract of Interstate 95 and nearly half a mile south of the highway to the periodic clatter of trains along the Amtrak and Metro-North railroad tracks that parallel the Long Island Sound coastline down the Northeast Corridor. The West Campus doesn't feel or look anything like downtown New Haven or Yale's august neo-Georgian and Gothic Revival campus. The bustling urban and collegiate world of the medical school and the main campus doesn't exist at all out there. There are no coffeehouses or vendor carts, no honking horns or scurrying pedestrians. Instead, the site is a vast ghost town, its cooling, heating, electrical, security and telecommunications systems maintained by a skeleton crew. A Yale banner announces that the university has staked its claim to the West Campus. Along with its layout of scattered, undistinguished if pleasant modern glass, brick and concrete buildings set amidst lawns, parking lots, roadways and concrete walkways, the Bayer property includes the Oyster River, which runs through a deep wooded ravine that bisects the property. Wild turkeys, deer and coyotes roam the landscape.

Alexander Cooper, a principal in the New York architecture and planning firm of Cooper, Robertson & Partners, says, "It looks like suburban office parks you'd find in any of the 50 states." Yale has engaged Cooper, who completed a new master plan for the New Haven campus, says Levin, "to think about ways to give the West Campus a Yale feel." Some preliminary suggestions Cooper presented to the Yale trustees in December included demolishing some structures, rerouting some streets, putting towers at the ends of streets and clustering buildings around courtyards, as

well as adding landscape alterations to make the campus more pedestrian-friendly. "It can become a great campus, absolutely," Cooper says.

Just what will make it truly a *Yale* campus remains uncertain and will likely not be fully resolved for decades. Along with the present spaces dedicated to future biomedical research, arts and library facilities, Levin says possibilities exist for new structures for the applied physical sciences and clinical centers. Even residential facilities might be constructed on the site. "The possibilities," he says, "are not fully imaginable today."

Regional plans announced well before Yale's acquisition of the site call for a new Metro-North commuter rail station to be built just outside the southwest corner of the site. Levin mentions that a dedicated shuttle train might operate between the West Campus and downtown New Haven. "It's imperative," he says, "that the West Campus be fully integrated into the core university. There have to be many faculty going back and forth."

Getting faculty to take the leap of imagination to see the potential of the new West Campus, admits Alpern, "will be tough." But before last year, the possibility that Yale would even acquire the property was not being considered. The future of the West Campus will take many years, and probably decades, to unfold. "When there was gold in the hills," Levin says, "we populated the West. We'll need a few brave pioneers to populate the wilderness. When they see the possibilities, others will want to join." As they do, Yale will grow and change in ways that nobody can fully predict. **YM**

Marc Wortman is a contributing editor of *Yale Medicine*.  
Matthew Garrett is a photographer in New Haven.





# A neurosurgeon's photographic legacy

Harvey Cushing pioneered many techniques in neurosurgery, among them the still-young art of photography as a tool of medicine.

Photographs  
by Harvey Cushing



**ABOVE** A negative of this portrait of Harvey Cushing recently surfaced as curators went through the photo archive that is believed to hold as many as 15,000 images. This picture was probably taken in Boston around 1930.

**OPPOSITE** Among the many treasures in Cushing's Brain Tumor Registry are the photographs he took of his patients, before and after surgery. Many of the patients were photographed with one of their hands showing. The hands took on importance in the photographs because many diseases affect the size and shape of the hands—they may be small in pituitary dwarfism and large in acromegaly, a hormonal disorder caused by a benign tumor of the pituitary gland that affects adults in their early 20s. Not all photographs have been matched to patient records. The boy at left is believed to have a pituitary tumor.

Early in the 20th century the country's leading neurosurgeon was Harvey Cushing, M.D., a practitioner whose meticulous standards and innovative techniques set the stage for those who followed. Surgical tools and neurological diseases bear his name; among his achievements are improved patient survival rates, the introduction of local anesthesia to brain surgery and the use of X-rays to diagnose brain tumors.

His attention to detail also led to the creation of the Brain Tumor Registry, a collection of more than 2,200 patient case studies that includes human whole-brain specimens, tumor specimens, microscope slides, notes, journal excerpts and more than 15,000 photographic negatives. The materials, which date from as early as 1887, were organized and classified by Cushing's assistants, Percival Bailey, M.D., and Louise Eisenhardt, M.D. In addition, from 1922 until Cushing's retirement a decade later, Eisenhardt kept a "little black book" that included case results, diagnoses and mortality percentages for every type of tumor operated on at the Peter Bent Brigham Hospital in Boston.

Cushing arrived in Boston in 1912 from Johns Hopkins Hospital, where he had completed his surgical residency. The trustees of the new Brigham Hospital had offered him not only a post as surgeon in chief but also the opportunity to help design the building, set policies and establish a section of neurological surgery. In addition, Cushing had a position as a professor of surgery at Harvard. Within three years he had achieved a surgical mortality rate of 8.4 percent, while other leading neurosurgeons were reporting rates of 38 to 50 percent. He attributed his success to his insistence on sterile procedures that reduced infections, a leading cause of mortality in brain operations. Cushing also laid the groundwork for the basic classification of brain tumors and was responsible for the first applications of electricity to neurosurgery by using a newly developed electric scalpel.

On Cushing's retirement from Harvard in 1932, he returned to Yale, where he had received his bachelor's degree in 1891, as the Sterling Professor of Medicine in Neurology. His tumor registry followed him. Its first home at Yale was the Brady Museum, where anyone interested in brain tumors was invited to use the collection for study. Over time the collection fell into disuse and ended up in a room in the basement of the Harkness dormitory. Christopher J. Wahl, M.D. '96, rediscovered the collection as a medical student and wrote his degree thesis on it.

Last fall Dennis D. Spencer, M.D., HS '77, chair and the Harvey and Kate Cushing Professor of Neurosurgery, and Aaron A. Cohen-Gadol, M.D., published *The Legacy of Harvey Cushing: Profiles of Patient Care*. An excerpt from the introduction, written by Wahl, Spencer, Cohen-Gadol and Terry Dagradi, curator of the photography collection, follows.

In 1902, a golf ball-sized piece of brain tissue, or more to the point, the conspicuous absence of a golf ball-sized piece of tissue, was the catalyst that led to the conception of the Cushing Brain Tumor Registry. Cushing's opportunities for intracranial tumor surgery at Johns Hopkins Hospital were few and far between and successes were rare. Still, he regularly examined all tissues removed during surgical cases, a habit he learned from his mentors, William S. Halsted, M.D., chief of surgery at Hopkins, and Emil Theodore Kocher, M.D., a Swiss surgeon who won the 1909 Nobel Prize in physiology or medicine for his work on the physiology, pathology and surgery of the thyroid gland. Following the removal of a "pituitary cyst" from a female patient, the Johns Hopkins Pathology Department "misplaced" Cushing's tissue specimen. The young surgeon, prone to fits of anger—which occasionally drew admonition from chief of medicine William Osler, M.D.—failed to contain his fury. He insisted that from that day on, he would be allowed to personally retain all specimens removed during his operative cases or autopsies.

[Cushing moved to Harvard and the Brigham Hospital in 1912, where he continued his practice of keeping meticulous records on each and every patient. Upon reaching Harvard's mandatory retirement age of 63 in 1932, he accepted a position at Yale and opened his collection to the medical community. Cushing died in New Haven in 1939.]

For two decades, Yale's Brain Tumor Registry, with Eisenhardt at the helm, remained a site of pilgrimage for young neurosurgeons and neuropathologists to study intracranial pathologies. Elias E. Manuelidis, M.D., became Eisenhardt's successor in the section of neuropathology and curator of the enormous archive. Throughout the 1940s and '50s, many young scholars, particularly neurosurgeons and neuropathologists studying for their certification boards, came to New Haven to utilize the collection. Over time, however, the gross specimens and photographic negatives came to be little used for research purposes. By 1968, the year after Eisenhardt's death, Manuelidis faced a tremendous

problem; the section of neuropathology at Yale prepared to secede from pathology. With the organizational split, laboratory space would be scarce; and vast bookshelves, stacked floor to ceiling with gallon receptacles containing brain specimens and stacks of photographic negatives, would play a minor role in the changing atmosphere of scientific research.

The 40-year-old specimens had fallen into a chronological void—too old to be of scientific value but ironically, too young to be of historical interest. The unwieldy archive also reeked of formaldehyde. The Edward S. Harkness Medical School Dormitory at Yale, built in 1955, retained rooms in the sub-basement for storage adjacent to a fallout shelter. Many of the storage cages contained provisions for a nuclear emergency, including large barrel tins of meal, drinking water and sanitary supplies; others were used for cold storage of building supplies, file cabinets and discarded medical equipment. Manuelidis acquired permission to stow the entire Cushing collection—photographic negatives, gross specimens, laboratory materials and dyes, even an old gurney—in a locked room near the shelter. He employed the help of faculty and students, and moved everything save the microscopic slides (which are still in use today) into the space below the dormitory. The collection remains in this sub-basement.

#### Patient photographs and records

Unexpectedly, the most revealing source of information related to Cushing's work lay in the Brain Tumor Registry's 15,000 photographic negatives. Cushing's negatives portray patients pre- and postoperatively, gross specimens, tumor specimens, photomicrographs, journal excerpts, letters and any other number of images relating to the early years of brain tumor surgery. The photographs often portray obsolete surgical practices as well as tumors that have grown to proportions rarely seen today outside the Third World. They also allude to the symptomatology, signs and diagnostic techniques that led Cushing, Eisenhardt and Bailey to lay the foundations of modern neurosurgery and neuropathology. Approximately 80 percent of the negatives are etched into the emulsion of 5-by-7-inch glass plates; the remaining negatives appear on celluloid film. Owing to the negatives' large format, the prints are striking for their clarity and detail.

Because the negatives are in chronological order correlated with the hospital records, Cushing preserved for



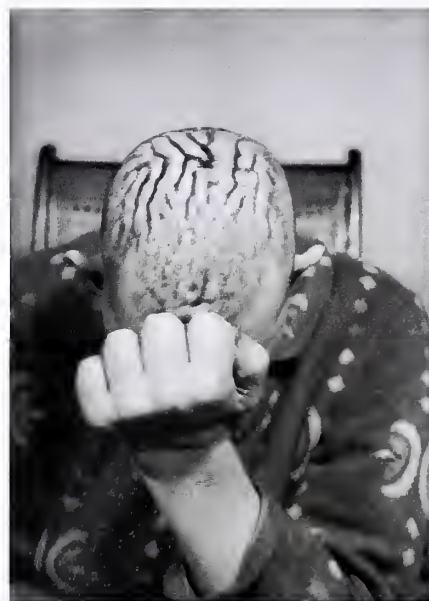
history a remarkable photographic diary. In the photographic negatives, one can follow Cushing's observations of the clinical presentation of disease. One sees the sudden emergence of new surgical approaches, documented in the records and complemented by novel intraoperative drawings and photographs of patients with craniotomy scars indicative of a changing technique. In these images, radiographs provide evidence of the emergence of the silver hemostatic clip; portraits exhibit similarities in morphology leading to Cushing's elucidation of pituitary basophilism; and histological photomicrographs highlight the utilization of staining techniques that Bailey brought to the Brigham.

The microfilmed hospital records that accompany the photographs indicate that Cushing cultivated in his residents the same meticulous attention to factual detail for which he is known. Past medical histories, family histories, complaints, progress notes, laboratory and perimetry results, neurological and physical examinations, operative notes, postmortem reports, telegrams, correspondence, and Cushing's ubiquitous operative sketches make the records so comprehensive that scientific studies of the cases, including the applications of premorbidity scales, are possible. The photographic negatives and patient records tell the historian much about Cushing, indeed much about the state of clinical medicine and surgery at the Peter Bent Brigham Hospital in the early part of the 20th century.

### Cushing's photographic legacy

To further understand the possible contributing factors behind Cushing's interest in photographing his patients, one needs to review a brief history of photography itself. In 1839 Louis-Jacques-Mandé Daguerre presented to the world his technique for developing a photographic process based on mercury vapor and silver iodide fixed by hot common salt. Although fragile, the daguerreotype was extremely popular in America between 1839 and 1860, about 3 million being produced each year at a peak in the early 1850s. Medical journals began to photograph patients before and after surgery, primarily for head and neck cancers and plastic procedures.

Following the daguerreotype, a wet plate process that used collodion, a mixture of guncotton in alcohol and ether, was introduced to make the first photographs on glass. The ambrotype perfected the collodion process in 1854 but was

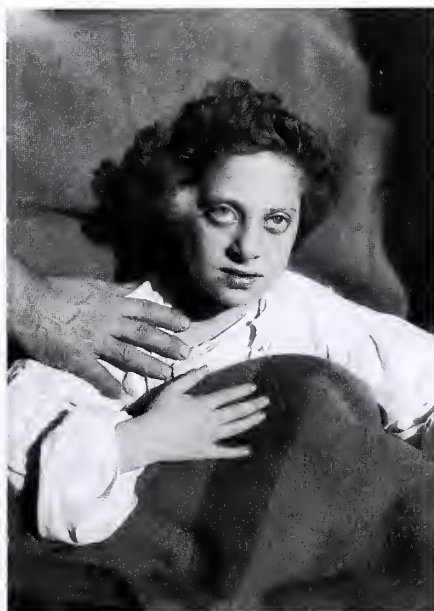


In 1911, while he was at Johns Hopkins University, neurosurgeon Harvey Cushing operated on this patient, who suffered from acromegaly.



Cushing's collection of photographs shows patients of all ages and in different stages of treatment. The patient on the left, for example, has a dressing for a peripheral nerve repair. No case record was available for the patient in the middle photograph. The asymmetry of the face of the girl on the right is the result of a left porecephalic cyst in her left hemisphere.





Case records for the woman on the left and the girl on the right have not yet been matched to the photographs. The girl in the middle had craniopharyngioma, a slow-growing tumor that afflicts children between the ages of 5 and 10. The photograph shows the right temporal decompression that was done to relieve pressure.

soon replaced by the tintype, invented by Hamilton L. Smith in Ohio in 1856. In 1880, a bank clerk named George Eastman obtained a patent in the United States for a photographic dry plate developed in England in 1878.<sup>1</sup> He followed his dry plates with the invention of photographic film in roll form in 1883. By 1900, cheap cellulose film and cameras were available to the public. Cushing or the unknown photographer at the Brigham, however, chose to continue using the dry glass plate technique from the earliest photo available in 1903 to the latest one in 1930. Several later photos were taken with the newer cellulose film; they have not withstood the aging process. On the other hand, the glass plates are perfectly preserved and are of remarkably high quality.

Cushing's early 20th-century portraits were grounded in the late 19th-century tradition of scientific facial photography. Although X-ray imaging was to emerge as the next extension of human sight, peeling off one more layer of tissue between the viewer and the living brain, Cushing used photographs as an extension of his diagnostic powers and a catalog of his historical sense.

In the Cushing Brain Tumor Registry for 75 years had lain the portraits of every patient Cushing touched, almost always photographed before and after an operation, but many times serially during the hospital stay, particularly if the patient were deteriorating. When there was nothing more Cushing could do as a surgeon, he documented the unrelenting course of the illness and the patient's death. And, for the majority of his patients who survived, he often chronicled their clinic visits, sending the patient down for a "routine photo," as we would repeat an MRI scan today. Unfortunately, we have no clue as to who took these pictures, whether it was the same person or a series of photographers. The quality, however, speaks for a professional who understood how these diseases were to be represented for Cushing and who knew that the quality and permanence of the glass plate method were superior to the more acceptable and common practice of using cellulose film.

Cushing never wrote about his patient portraits or their faces as an emotional response to their diseases. Instead, he described brain disease, often for the first time, through the camera's lens. Cushing's groundbreaking work in identifying and classifying tumors of pituitary and parapituitary origin may have stimulated the first photographs of patients with these tumors. The phenotypic expression of

such pituitary tumors as acromegaly, a rare disorder that results in increased growth of bone and soft tissue, could be identified in pictures and documented for publication, and the photographs could be repeated to look for progression or remission after surgery. However, Cushing did not photograph only those patients with obvious phenotypic expression of their disorders; he photographed essentially every patient in his care. Although it is not clear how most of these images contributed to patient care, education, or research at the time, the possible unintended consequences for art and history are incredibly powerful.

These patients' photographs are most likely the first, as well as the most complete, catalog of neurological disease at the beginning of the 20th century. What makes them even more powerful is Cushing's compulsive cross-reference process that ties each picture to the available hospital record on microfilm. Cushing also captured in the patients' faces what we do not image today—loneliness, fear, pain, trust, despair, and often just stoicism.

By any measure, Cushing's written and photographic diary of neurosurgery in the early part of the 20th century steps beyond semantic issues. The technique and large format of the photographic negatives capture a raw emotional energy and oftentimes macabre subject matter that bring the viewer into empathetic participation with Cushing's patients. This relationship becomes much more sublime when one stops to consider the age of the photographs and recognizes that while neurosurgery has changed so much over this past century, the experience of being a patient has not. In 1969, the year Cushing would have been a centenarian, the neurosurgeon and author Wilder Penfield, M.D., qualified him as "an artist, a Leonardo da Vinci devoting his talent to surgery." The passing of time and the re-evaluation of the materials belonging to the Harvey Cushing Brain Tumor Registry confirm the accuracy of Penfield's statement. **YM**



A podcast of Dennis Spencer speaking on surgical techniques to treat epilepsy can be found on the Yale page on iTunes U. Visit [itunes.yale.edu](http://itunes.yale.edu) or launch iTunes, then select Yale from the offerings under iTunes U. The podcast is included under "Yale Health & Medicine."



## An eye for detail and a steady hand

Harvey Cushing, M.D., left his name as well as his mark on American medicine—Cushing's disease, Cushing's sign, Cushing's syndrome and Cushing's scissors. His pioneering innovations in anesthesia and surgical education are still practiced today. But Cushing's prodigious talents found expression in yet another form: he was also a gifted medical illustrator.

A lecture last fall titled "Harvey Cushing: The Artist," part of the Fulton-Cushing Lecture Series, explored this lesser-known aspect of the Cushing legacy. "Harvey Cushing was many things to many people: a master neurosurgeon, the father of endocrinology, but he was also a first-rate medical illustrator," said Robert Udelsman, M.D., M.B.A., chair and the William H. Carmalt Professor of Surgery.

Cushing displayed artistic ability at an early age. A picture of a lion he drew at age 16 reveals the work of a precocious talent, far from the doodles of a typical teenage boy. Cushing's sharp eye is also evident in sketches of his brother, Ned, and in pictures of the Cuban countryside he drew while on vacation in 1894.

But Cushing didn't draw pictures just to entertain himself; his drawings served as a detailed record of what he observed. This artistic purpose became increasingly important to him when he enrolled in the Harvard Medical School and later, when he became a house pupil, as interns were then called, at the Massachusetts General Hospital.

Cushing "drew as a method of conveying what he saw on the clinical wards," Udelsman said. One pen-and-ink drawing found in Cushing's clinical notebook shows an elderly man with Cheyne-Stokes

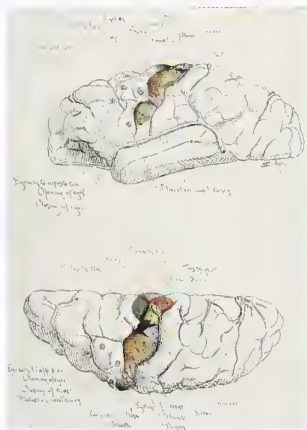
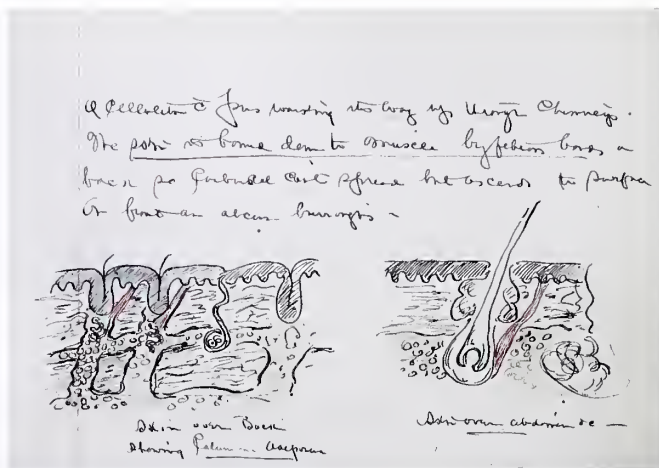
respiration. Another drawing depicts a man with a massive goiter that resembles a sack of potatoes.

Cushing's artistic mentor was Max Brödel, known as the father of modern medical illustration. The two met at Johns Hopkins University, where Brödel had established the Department of Art as Applied to Medicine. Brödel taught Cushing his techniques, which included the use of chiaroscuro—contrasts between dark and light to achieve a sense of volume in depicting three-dimensional objects. Cushing, always a quick student, adopted this method and used it effectively to convey such images as a neurosurgeon's-eye view of the human brain.

As Cushing's medical career progressed and his skills as an artist grew, he started making illustrations of the medical procedures he planned to use. One Cushing illustration shows a patient with a cleft palate; in the next drawing, one can see Cushing carefully working out his plans to perform the corrective operation.

Cushing was photographed often during his illustrious career; a familiar picture shows him in his dressing room after surgery, head bent over his pad. He's still wearing surgical gloves as he sketches his operative findings. Today, doctors tape-record their clinical observations, but for Cushing, words and photographs fell short of what could be conveyed by a skilled illustrator—so he made sure he became one.

—Jennifer Kaylin



Harvey Cushing made drawings, including landscapes during a Cuban vacation, in order to keep a detailed record of what he observed. As a medical student and hospital intern he drew to convey what he observed on the clinical wards. From Max Brödel, the father of modern medical illustration, Cushing learned to use chiaroscuro—contrasts between dark and light—to convey such images as a neurosurgeon's-eye view of the human brain. He also made illustrations of the medical procedures he planned to use.

# A campaign makes a stop at Yale University

Senator Hillary Rodham Clinton visited the Child Study Center, where she worked on child and family issues during law school.

By John Curtis

In the fall of 1969 a recent graduate of Wellesley College arrived in New Haven in “an old beat-up car with a mattress roped to the top” to study at Yale Law School. On February 4, Senator Hillary Rodham Clinton, J.D. '73, returned to Yale on the eve of the Super Tuesday primaries as a candidate for president of the United States.

“This is so nostalgic,” Clinton told an audience of more than 200 people that included a large press contingent in the Cohen Auditorium of the Child Study Center (CSC). “I think back on those years as among the most important of my life for a number of reasons.” It was at the law school that she met her husband, the former president of the United States, Bill Clinton.

The reunion became an emotional occasion for both Clinton and Penn Rhodden, J.D., a public interest lawyer in New Haven who had supervised her work in his legal clinic when she was a student. In his introduction, Rhodden recalled that Clinton had worn purple bell-bottoms and a sheepskin coat. “You looked so wonderful and so 1972,” he said. As he neared the end of his remarks, Rhodden choked up and Clinton’s eyes watered. “I said I would not tear up,” she said.

It was at Yale that Clinton first became an advocate for children, inspired by a talk at the law school by Marian Wright Edelman, founder of the Children’s Defense Fund. Clinton spent the next summer working with Edelman on behalf of youths incarcerated in adult facilities and against President Richard Nixon’s plan to grant tax-exempt status to segregated private academies. “I started to look at ways of using the law on behalf of children,” said Clinton, a Democrat who represents New York in the Senate. “That is how I found my way to the Child Study Center.”

At the CSC Clinton worked with the late Sally A. Provence, M.D., and the late Albert J. Solnit, M.D., HS '52,

pediatricians who championed child and family issues. She also worked with Jay Katz, M.D., HS '56, J.D., the Elizabeth K. Dollard Professor Emeritus of Law, Medicine and Psychiatry at the Yale Law School. “We created a program,” she said. “We convinced the Child Study Center and the law school that it was a good idea for law students to come over here.”

For the February event, Clinton’s staff assembled a group of 11 local women for a round-table discussion. The group included a small-business owner from Stamford, a single mother of two, a Connecticut state senator, a stay-at-home mother from Middletown, the former president of the Connecticut Nurses’ Association, a clinical psychologist on the CSC faculty, a retired Army nurse, a community activist from Bridgeport, a retired New Haven police officer, a union official from New London and a second-year Yale law student who directs a domestic violence clinic.

The panelists’ stories played into Clinton’s policy themes: the stay-at-home mother talked about trying to make ends meet with two children in college and a third whose medical needs are not covered by her health insurance; the business owner decried the high cost of health insurance that limits her ability to hire new employees and expand her business; the single mother’s part-time job pays too little for her to engage quality child care and limits her career options; and the union leader said health care had topped the agenda during contract negotiations.

From each woman’s story Clinton plucked details that illustrated such themes of her campaign as her proposal for universal health coverage. “Universal health care is not just the moral thing to do, it’s the economically smart thing to do,” she said. Insurance companies, she noted, will reimburse for amputations but not screening for diabetes. Health care, she said, “should be more about keeping us well than about stepping in when we’re sick.” She proposed allowing



On the day before the Super Tuesday primaries, Hillary Rodham Clinton, a U.S. senator from New York who is seeking the Democratic Party's presidential nomination, returned to Yale to lead a discussion of health care issues.



the Bush administration's tax cuts to expire and applying the increased revenues to universal coverage.

"We are going to have different rules," she said. "The insurance companies are determining how people practice medicine and how hospitals cover costs. It is time to put our health back under the control of the professionals. We don't want people going to the emergency room for sniffles and headaches. We want them to go to their own doctor."

One of the last questions came from Rachel Friedman, a medical student who is graduating this spring. One of three in her class who's planning to enter family medicine,

Friedman asked what could be done to counter the shortage of family practitioners.

"We have to help medical students with the cost of med school," Clinton replied, to cheers from students in the audience, who also cheered her suggestion for loan forgiveness for doctors who enter family practice.

After 90 minutes Clinton was ready to leave for her next campaign event, and the former law student in purple bell-bottoms was on her way. **YM**

John Curtis is the managing editor of *Yale Medicine*.



Cynthia Walker



Sankar Ghosh



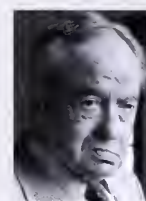
Nigel Grindley



Anna Pyle



Thomas Steitz



Edward Zigler



Walter Gilliam



Sven-Eric Jordt

**Cynthia Walker**, M.B.A., has been appointed deputy dean for finance and administration at the School of Medicine. Walker comes to Yale from Harvard Medical School, where she began as a financial analyst in 1983 and served as associate dean for finance, CFO, dean for finance and executive dean for administration. She has been active in a number of national organizations, including the Association of American Medical Colleges and the American Institute of CPAS.

Walker has an undergraduate degree from Yale and an M.S./M.B.A. from Northeastern University. She started her new post at the medical school in January. She replaces Jaclyne Boyden, who served as deputy dean for finance and administration from 2004 until last year.

Her responsibilities will include budget and financial operations, strategic financial planning, facilities and space management, human resources and information technology.

Six faculty members in the biomedical sciences were honored as fellows of the American Association for the Advancement of Science. They were inducted along with three other Yale faculty members at the association's annual meeting in Boston in February.

**Sankar Ghosh**, PH.D., professor of immunobiology, molecular biophysics and biochemistry, and of molecular, cellular and developmental biology, was named a fellow in the Section on Biological Sciences for "distinguished contributions to the field of immunology."

**Nigel D.F. Grindley**, PH.D., professor of molecular biophysics

and biochemistry, was named a fellow in the Section on Biological Sciences for "distinguished contributions to our understanding of mechanisms of recombination."

**Andrew D. Miranker**, PH.D., associate professor of molecular biophysics and biochemistry, was named a fellow in the Section on Chemistry for "distinguished contributions to the field of protein folding."

**Anna M. Pyle**, PH.D., the William Edward Gilbert Professor of Molecular Biophysics and Biochemistry, director of the Division of Biological Sciences and a Howard Hughes Medical Institute investigator, was named a fellow in the Section on Chemistry for "fundamental studies on RNA tertiary folding and on the mechanical behavior of RNA remodeling enzymes."

**Gordon M. Shepherd**, PH.D., professor of neuroscience, was named a fellow in the Section on Neuroscience "for distinguished contributions to the understanding of the circuitry of the brain and the structure and function of the olfactory bulb."

**Thomas A. Steitz**, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry, professor of chemistry and a Howard Hughes Medical Institute investigator, was named a fellow in the Section on Biological Sciences for "distinguished contributions to structural biology."

Three Yale scholars have won the 2008 University of Louisville's Grawemeyer Award in Education for their book, *A Vision for Universal Preschool Education*. **Edward F. Zigler**, PH.D., Sterling Professor Emeritus of Psychology, **Walter S. Gilliam**,

PH.D., assistant professor in the Child Study Center, and **Stephanie M. Jones**, PH.D., '02, argue in their 2006 book that making preschool available to children aged 3 and older would improve the school readiness of the nation's young children, fill a gap for working families, lower the high school dropout rate, reduce crime and boost the economy.

**Sven-Eric Jordt**, PH.D., assistant professor of pharmacology, and **Susan Kaech**, PH.D., assistant professor of immunology, received the Presidential Early Career Award for Scientists and Engineers in a White House ceremony on November 1. The awards, which identify and honor outstanding researchers who are beginning their careers, include five years of support. Jordt was honored for conducting ethics seminars for incoming students and for his research on the effects of environmental irritants in airway diseases and inflammation. Kaech was selected for mentoring undergraduate and graduate students as well as postdoctoral fellows and for characterizing the development of memory T cells in long-term immune protection.

**Peter S. Aronson**, M.D., FW '77, the C.N.H. Long Professor of Medicine and professor of cellular and molecular physiology, has been named the 2008 Carl W. Gottschalk Distinguished Lecturer of the American Physiological Society Renal Section. He delivered a lecture in April at the Experimental Biology Meeting in San Diego. Aronson served for 15 years as chief of the Section of Nephrology in the Department of Medicine.

**Paul G. Barash**, M.D., professor of anesthesiology, received the Distinguished Alumnus of the Year Award from the University of Kentucky College of Medicine in October. This honor is accorded to physicians who have achieved a high level of excellence in their careers through research, public policy, development of innovations or delivery of exceptional quality of care to their patients. In 2004 Barash received the Commonwealth Award, given to physicians who have earned distinction for their leadership and contributions to medical care benefiting the college, the state and the nation. He is the only alumnus to receive both awards.

**Michael Cappello**, M.D., professor of pediatrics, of microbial pathogenesis and of epidemiology and public health, was named recipient of this year's Bailey K. Ashford Medal from the American Society of Tropical Medicine and Hygiene. The award is given each year for distinguished work in tropical medicine to a researcher in early or mid-career. Cappello received the medal at the society's annual meeting in Philadelphia on November 4.

**Vincent T. DeVita Jr.**, M.D., the Amy and Joseph Perella Professor of Medicine at Yale Cancer Center, was presented with a 2007 FREDDIE Special Award for Public Service by MediMedia Information Technologies at their annual gala in Philadelphia on November 2. The award honors his leadership in cancer research and treatment. Director of Yale Cancer Center from 1993 to July 2003, DeVita served as director of the National Cancer Institute and the National Cancer Program.





Susan Kaech



Michael Cappello



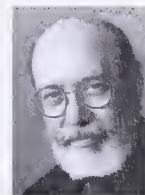
Vincent DeVita



Erin Lavik

Alexander  
NeumeisterJennifer Prah  
Ruger

Gerald Shulman



Dennis Spencer

**David A. Fiellin, M.D.**, associate professor of medicine, was elected to the board of directors of the College on Problems of Drug Dependence (CPDD). CPDD is the premier membership organization for NIH-funded researchers addressing drug dependence and abuse.

**Richard Flavell, PH.D.**, professor of immunobiology, received the Rabbi Shai Shacknai Memorial Prize and Lectureship in Immunology and Cancer Research for 2008 from the Lautenberg Center of Hebrew University in Jerusalem in January. The prize recognizes and brings outstanding investigators in immunology or cancer biology to lecture at the Faculty of Medicine at the university.

**Erin Lavik, PH.D.**, assistant professor of biomedical engineering, was honored by the Connecticut Technology Council as one of their 2008 Women of Innovation. The annual event honors Connecticut women for their achievements as small-business owners, entrepreneurs, researchers, community leaders and innovators. Lavik focuses her research on developing new therapeutic approaches to the treatment of spinal cord injury and retinal degeneration.

**James F. Leckman, M.D.**, was honored in October by NARSAD, the world's leading charity dedicated to mental health research. Leckman, the Neison Harris Professor of Child Psychiatry, Psychiatry, Psychology and Pediatrics and director of the Child Study Center, received the Ruane Prize for Outstanding Achievement in Child and Adolescent Psychiatric Research. Leckman's research focuses on

autism, Tourette disorder and obsessive-compulsive disorder.

**Robert J. Levine, M.D.**, professor of medicine, has been appointed to the National Academy of Sciences' Panel on Collecting, Storing, Accessing, and Protecting Social Survey Data Containing Biological Measures. The panel has been asked to provide recommendations for best practices, procedures and guidance for funding agencies, institutional review boards and researchers.

**Richard P. Lifton, M.D., PH.D.**, chair and Sterling Professor of Genetics, received the Wiley Prize in Biomedical Sciences in April for discovering genes that cause many forms of high and low blood pressure. The prize, given by a worldwide publisher of medical and scientific books, consists of a \$25,000 grant and an invitation to deliver a lecture at The Rockefeller University in New York City.

**Thomas H. McGlashan, M.D.**, professor of psychiatry and director of the Yale Psychiatric Institute, has received the Stanley Dean Award for Research in Schizophrenia from the American College of Psychiatrists (ACP). The award is presented annually to an individual or group that has made major contributions to the understanding and treatment of schizophrenic disorders. McGlashan received the award at the ACP annual meeting on March 1 in Kauai, Hawaii.

**Ruslan Medzhitov, PH.D.**, professor of immunobiology and a Howard Hughes Medical Institute investigator, has received a Blavatnik Award for Young

Scientists from the New York Academy of Sciences. Medzhitov studies the way in which the human immune system detects and subsequently becomes activated by infection. The Blavatnik Awards recognize the most noteworthy and innovative researchers from New York, New Jersey and Connecticut, and carry an unrestricted cash prize of \$25,000.

**Alexander Neumeister, M.D.**, associate professor of psychiatry and director of the Molecular Imaging Program of the Clinical Neuroscience Division, has received a five-year, \$600,000 Investigator Award from the Patrick and Catherine Weldon Donaghue Medical Research Foundation for Health-Related Research. The funding will support Neumeister's study of the relationship between trauma and stress and an increased risk of depression.

**Marina Picciotto, PH.D.**, received the Jacob P. Waletzky Memorial Award for Innovative Research in Drug Addiction and Alcoholism in November. The award is supported by the Waletzky family and the Philanthropic Collaborative at Rockefeller Philanthropy Advisors. The Society for Neuroscience confers this award on a scientist who has done or plans to do research in the area of substance abuse and the brain and nervous system.

**Jennifer Prah Ruger, PH.D.**, assistant professor in the Division of Global Health at the School of Public Health, has received a five-year, \$600,000 Investigator Award from the Patrick and Catherine Weldon Donaghue Medical Research Foundation for

Health-Related Research. The funding will support Ruger's study of ways to allocate high-quality health care in an equitable fashion while retaining desired levels of efficiency and technological innovation.

**Gerald I. Shulman, M.D., PH.D.**, professor of medicine and of cellular and molecular physiology and a Howard Hughes Medical Institute investigator, is the 2008 recipient of the Stanley J. Korsmeyer Award in recognition of his contributions to the fields of insulin resistance and type 2 diabetes mellitus. The award is given by the American Society for Clinical Investigation and carries an unrestricted \$10,000 grant. Shulman has pioneered the application of magnetic resonance spectroscopy to noninvasive examination of intra-cellular glucose and fat metabolism in humans.

**Dennis D. Spencer, M.D.**, HS '77, chair and the Harvey and Kate Cushing Professor of Neurosurgery, was elected president of the 3,000-member American Epilepsy Society (AES) during the organization's annual meeting in Philadelphia in December. AES is the professional society for physicians and scientists who study and treat epilepsy. Spencer is internationally recognized for his contributions to the surgical treatment of neurological diseases causing epilepsy.

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## Of gangstas, capos and accreditation inspectas

This year's second-year show portrays the faculty as mobsters and the medical school as a racket.

Following a tradition dating back to 1949, the Class of 2010 presented *The Unaccreditables*, its second-year show, in February. As their predecessors have done for almost six decades, the students mocked deans, faculty and one another in a multimedia show that included live singing and dancing on stage as well as videos—including one in which Dean Robert J. Alpern, M.D., Ensign Professor of Medicine, played himself as an embezzling gangsta.

That was one subplot in a grander scheme that portrayed a faculty board meeting as a sit-down of mob capos, with the school as a criminal enterprise. The capos' current problem is getting the school reaccredited by the Liaison Committee on Medical Education (LCME). Unfortunately, there's no way the school will pass muster. The committee has doubts about the school's "hands-off approach to medical education," aka the Yale system.

Among the source material for the song-and-dance routines were Cream's "White Room"; "It's Easy, M'Kay," from the animated TV show *South Park*; "Rappers' Delight," by the Sugarhill Gang; the early 1960s hit "The Shoop Shoop Song"; "I'm Too Sexy," by the British pop band Right Said Fred; and, of course, the theme from *The Godfather*.

The LCME inspector, played by Alexi Nazem, finds fault throughout his tour. "Your anatomy labs," he finds, "are very musical, but not at all educational."

**TOP** In the show's finale Terri Huynh, Laura Tom and Hiromi Yoshida performed, "Accredit Us," to the tune of "Aquarius."

**BOTTOM LEFT** Sonja Rakowski, as Peggy Bia, threatens to strangle Auguste Fortin, played by Tyler Dodd, unless he agrees to murder an inspector from the LCME. Katherine Rose, playing Nancy Angoff, looked on.

**BOTTOM RIGHT** Katherine Rose portrayed Nancy Angoff, the associate dean of student affairs.

Then there's the question of the second-year show itself: "What kind of credible medical school would allow the entire second-year class to waste two weeks on this #@%&\*?"

At a faculty board meeting, Frank J. Bia, M.D., until recently a professor of medicine; Margaret J. Bia, M.D., professor of medicine; Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, associate dean for student affairs; Richard Belitsky, M.D., deputy dean for education; John N. Forrest Jr., HS '67, director of research; and Richard Silverman, director of admissions, all played by students, look for a way out. Bribe the

inspector? Scratch that. There's no money. Alpern has been siphoning off school funds to support a lavish lifestyle, including a second kidney-shaped pool at his home. Only two options remain. "I think it's time we sent the inspector to sleep with the fishes," intones Frank Bia, played by Kaveh Mansuripur. The other possibility? Well, the faculty have noticed an attraction growing between the inspector and Angoff, played by Katherine Rose. In the end all is resolved when Angoff and the inspector tryst over Twister, "the game that ties you up in knots."

—John Curtis



HAROLD SHAPIRO (3)





## Auction raises \$30,000 to benefit the homeless and hungry in New Haven

For 24 hours one day in November, first-year medical student Ali Batouli was at the beck and call of classmate Caitlin Koerber. "I owned his soul on Friday, November 16," Koerber said, referring to her \$75 purchase of Batouli's services at the 2007 Hunger and Homelessness Auction earlier that month. Among the more than 300 items offered at both the live and silent auctions—including babysitting and meals prepared by students, weekend stays in faculty vacation homes, rides on faculty yachts and dinners at local restaurants—was an item from Batouli.

"For one full day I will do anything you ask me to, except break the law, physically harm myself or someone else, permanently alter my appearance and spend a lot of money I don't have. Certain restrictions may apply. Ask your doctor if you are allergic to Ali."

After soliciting ideas from classmates, Koerber said, "Ali was ordered to do monkey impressions in anatomy lab whenever anyone said the word piriformis (which was a lot), wear a green and white polka-dot dress in lab, hug everyone and serenade each learning society with 'I'll Make Love to You.' After lab, Ali drove me to Philadelphia, where I was spending my Thanksgiving break. We tangoed in gas stations where Ali bought me Starbucks and gave me a piggyback ride back to the car, at my request."

Behind the fun was a serious purpose: the auction raised \$30,000 for seven area charities. The proceeds

**TOP** As he did last year, Wade Brubacher, a professional auctioneer from Kansas and father of second-year medical student Jacob Brubacher, volunteered his services for the Hunger and Homelessness Auction. The event raised \$30,000 for area charities.

will benefit the Emergency Shelter Management Service, the Community Health Care Van, Loaves and Fishes, Domestic Violence Services, the Community Soup Kitchen, the Downtown Evening Soup Kitchen and Caring Cuisine.

Barbara Hirschman, a second-year M.D./P.H.D. student and one of the auction's two co-chairs, said local organizations were asked to submit grant applications. Members of the auction's board, which includes students in medicine, public health, nursing and the Physician Associate Program, also made site visits.

**BOTTOM, LEFT AND RIGHT** Browsers examined items during the silent auction that preceded the live auction.

"We want to fund organizations that can complete a project," Hirschman said. "We want to see that the money we provide them has a tangible benefit as opposed to going to operational costs."

—J.C.



JOHN CURTIS (3)





JOHN CURTIS

Alumna Lisa Sanders had a career in journalism before turning to medicine. Now she combines both pursuits in a column in *The New York Times Sunday Magazine*.

## A doctor's passion for medical storytelling

For a Yale alumna, the patient history and physical takes on a new narrative life in *The New York Times*.

**Lisa Sanders, M.D. '97, HS '01,** loves a good story and has built her career around her narrative skills, beginning with her early days in television and continuing through her subsequent decade in medicine. The form her tales have taken, however, has changed over the years.

A few years ago, when an editor friend asked Sanders what she thought doctors could write about, her answer was that they write one thing and they write it every day: the history and physical. Her belief in the storytelling power of the H-and-P led to "Diagnosis," a monthly column in *The New York Times Sunday Magazine*, about cases that stump doctors and how they are ultimately resolved. In Sanders' hands, the column's H-and-P format is an effective way of weaving tales about such cases as an emaciated 9-year-old girl who suffered months of vomiting and diarrhea before being diagnosed with Addison disease, or a young man whose Hodgkin disease was diagnosed after frightening episodes of memory loss. The column's success inspired the TV series *House*, about a curmudgeonly physician who is a brilliant diagnostician. "Until *House* came about, diagnosis [in TV medical dramas] was the one-liner between symptoms and the terrible response to treatment. *House* takes that moment and looks at it, which is what my column did," said Sanders.

Sanders started her working life not in medicine but in journalism. After graduating from the College of William and Mary in 1979, she worked as a producer at CBS News, where she earned an Emmy Award. By the early 1990s, she was looking for something else to do with her life. She had covered medicine and it had captured her attention. "I thought, 'This is something interesting.' If I can do it, it will be fun," she said. "And it turns out it has been fun."

In 1992, after two years at Columbia University's Post-Baccalaureate Pre-medical Program, Sanders entered the School of Medicine. At age 36 she was the oldest member of the Class of 1996. She completed her internal medicine residency at Yale and became chief resident in 2000.

Since then, Sanders has combined her talent for storytelling with her passion for medicine. She is an assistant clinical professor of medicine at the School of Medicine and teaches in the Yale Primary Care Residency Program at Waterbury Hospital. Sanders believes that when talking with the same patient, different doctors get both the same story and a different story, depending on how comfortable the patient feels and what questions the doctors ask. Eliciting a history is an important skill, she believes, and one she spends a lot of time helping residents develop. She also uses the physical exam to teach residents how to think about and approach problems. Although she occasionally lectures, Sanders feels that medicine isn't learned that way. "The trick in medicine is not facts," she said. "The trick is figuring out how to apply what you know to the case at hand. That actually turns out to be a very difficult skill."





David Brenner "escaped" from Yale after 11 years as a medical student and resident before his academic journey led to the University of California, San Diego, where he is vice chancellor for health sciences and the dean of the medical school.

Sanders listens to each person's story, never spending fewer than 20 minutes with a patient. She specializes in obesity and has plans to set up an outpatient obesity clinic at Waterbury Hospital. Several years ago, while researching low-carbohydrate diets, Sanders realized that adhering to a way of eating, rather than a specific diet, is the key to losing weight. This led to her 2004 book, *The Perfect Fit Diet: How to Lose Weight, Keep It Off, and Still Eat the Foods You Love* (St. Martin's Griffin), which offers guidelines on how to devise a sensible eating plan based on personal food preferences.

Sanders lives in New Haven with her husband, writer Jack Hitt, and their two daughters. She fits teaching, consulting, writing and treating patients into her schedule by getting up at 4 a.m. to write for three hours before beginning the rest of her day. In addition to her column, she is working on her second book, *The Tools of the Trade: The Art and Science of Medical Mysteries*. Scheduled for publication next spring, the book seeks to put the reader into the doctors' shoes as they negotiate the uncertainty between symptoms and diagnosis. She loves writing because it requires her to step back from the immediacy of treating patients, but medicine is the driving force behind everything she undertakes. As for what her future holds, the ending to that story hasn't been written yet. "I used to have five-year plans," she said, "but nothing I've ever done has been on them."

—Jill Max

## A gastroenterologist moves around the country and into a top job at UCSD

An academic journey that began at Yale's Ezra Stiles College in 1971 has led **David A. Brenner, M.D.** '79, HS '82, from coast to coast and, most recently, to the top leadership role at the medical school of the University of California, San Diego (UCSD).

After an internal medicine residency at Yale-New Haven Hospital—"I escaped after 11 years," he chuckled—a fascination with basic research brought him to the National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases. In 1985 he went to UCSD for a gastroenterology fellowship, later joining the faculty. Next he joined the University of North Carolina at Chapel Hill as chief of the Division of Digestive Diseases and Nutrition, and in 2003 he became chair of medicine at Columbia University's College of Physicians and Surgeons, where his daughter Laura is currently a medical student. (His son, Nathan, is a recent graduate of the University of Georgia.) San Diego, though, has lured him back. In February he became vice chancellor for health sciences and dean of the school of medicine after his predecessor, Edward W. Holmes, M.D., accepted two research positions in Singapore. Brenner is head of the schools of medicine and pharmacy as well as of the hospital and its faculty, and his duties bring him into close contact with students, bench researchers, patients and decision makers for the university as a whole.

Brenner's interest in research began early. At Yale College he majored in

biology. In medical school, he began working with researchers in the Yale Liver Study Unit. "I was always interested in biochemistry and genetic diseases, and I picked this because it looked interesting, not because I thought there was something intrinsically interesting about the regulation of metabolism by the liver," Brenner said. "Gerald Klatskin, one of the most famous hepatologists ever, was director of the liver study unit, so I just stayed, and got interested in liver disease." With his mentor, Joseph R. Bloomer, M.D., FW '72, a student of Klatskin's and now director of the Liver Center at the University of Alabama at Birmingham, Brenner published several papers in the late 1970s on the group of diseases known as the porphyrias, enzyme disorders that cause skin problems or neurological complications. He and Bloomer remain in touch. Brenner continued to make important contributions to knowledge about protoporphyria; intracellular signaling and regulation of gene transcription in the liver; and the process of hepatic fibrosis. From 2001 to 2006 he served as editor in chief of the field's most prestigious journal, *Gastroenterology*.

His current research explores why so many types of liver disease lead to the same ends—cirrhosis or permanent fibrotic change. "The liver's not that smart; it's not like the brain. There's a limited repertoire of responses to insult, it doesn't matter what the initial insult is; the final common pathway is very similar," he said. "The only effective drugs now for fibrosis are directed at the treatment for the underlying condition. But the goal is to

develop specific therapies that are directed at fibrosis itself, and not the underlying agent. Maybe half the patients with hepatitis C in the real world will fail to respond to the current standard-of-care treatment. They will go on to scarring, fibrosis, decompensation and liver cancer."

Asked how gastroenterology has changed since he began his training, he says he is concerned about what he considers to be a shrinking of its focus. Screening colonoscopy, a procedure that has saved innumerable lives since becoming routine, now dominates many gastroenterologists' practice. "It's incredibly important, relatively straightforward and very profitable. I'm worried it's gotten too narrow. The whole field is keyed on this one single disease [colon cancer] and one single procedure." Indeed, recent advances in imaging technology may force gastroenterologists, ready or not, to alter their practice pattern. "This interest in CT virtual colonographs [a less invasive means of screening for colon cancer]—what if it becomes the major way of screening? Then all these millions of patients will not need an endoscopist. ... In 10 more years, diagnostic endoscopy might no longer be done. I wish the field would be more general, more entrepreneurial about issues of nutrition, obesity and GI diseases." European gastroenterologists have been more inquisitive in this sense than their American colleagues. "When a new technology becomes available, they bring it into their practice, whether it's ultrasound or CT." In the United States, cardiac ultrasound is done by cardiologists, but abdominal ultrasound is still the

province of radiologists. Gastroenterologists, he thinks, should do their own ultrasounds.

Brenner's new job suits his eclecticism. His career has been replete with accomplishments in research, clinical work and administration, and at UCSD he is still able to round on patients, troubleshoot gels in the lab and maintain leadership roles in several medical and philanthropic organizations.

"I decided that if at all possible I want to continue teaching and seeing patients; I want to continue my research program," he said. "Sometimes hands-on experience is the best."

—Jennifer Blair



ROSS TURNER

## A public health alumna brings social justice to the campaign for healthy food

**Michele Simon**, M.P.H. '90, J.D., is incensed that businesses spend \$36 billion annually "on marketing to get people to [consume] the wrong things." She's convinced that advertisements for alcohol, tobacco and junk foods promote chronic illnesses. And that's why the author of *Appetite for Profit: How the Food Industry Undermines Our Health and How to Fight Back* (Nation Books, 2006) crusades against "diseases caused by marketing."

As part of her food campaign, Simon established the website [www.informedeating.org](http://www.informedeating.org) to build awareness of the politics of food, and to encourage active public responses to the food industry. Simon gives frequent speeches in which she urges, "Look at what the food industry has done to alter our choices, then go after agricultural policy in a social-justice way. For example, poor communities suffer because of the availability of inexpensive alcohol and the lack of healthy food." Simon is also the research and policy director for the Marin Institute, an alcohol industry watchdog group in California.

Likening her crusade to antismoking campaigns, Simon asked, "How can we change the laws so that eating healthy is not the exception? Agricultural policies are heavily influenced by industry. We're subsidizing the wrong kinds of foods—we don't even produce enough fruits and vegetables to meet daily recommended servings."

Simon's passion germinated during her years as a biology major at Carnegie Mellon University and her



While earning her public health degree at Yale, Michele Simon designed her own educational program, which included courses in law, medicine and business. Now she campaigns for healthier eating habits.

dual interests—bioethics and policy—spurred the New York City native to pursue a public health degree at Yale. When assisting with prenatal counseling at Yale-New Haven Hospital drew her toward genetics, Simon sought permission to take a course in reproductive law at Yale's law school.

"Jay Katz's class was fascinating," she recalled, referring to Jay Katz, M.D., HS '56, J.D., the Elizabeth K. Dollard Professor Emeritus of Law, Medicine and Psychiatry at the Yale Law School. [See; "A Campaign Makes a Stop at Yale University," p. 34] Simon became Katz's research assistant and was influenced by his pioneering work in bioethics and informed consent. "He certainly had an impact on me in combining health and law."

At that time Yale offered neither a health policy concentration nor joint degrees in law and public health, but Simon was permitted to design her own program, which included courses in law, medicine and business. "I'm grateful I was able to do something that really suited me, and always felt I got support from the faculty," she said.

During her first job, at California's Department of Health Services—Genetic Disease Branch, Simon decided to enhance her health policy credibility and earned her J.D. at University of California Hastings College of the Law in 1995. Then, inspired by her new vegetarian diet and convinced that nutrition curricula at colleges and universities often reflect industry-influenced "science," Simon taught herself about nutrition and quickly identified key political issues.

"With so much scientific evidence pointing to a plant-based diet being

superior, why does the government tell us to eat meat and dairy every day? Why are school lunch programs so heavy on animal products?" she wondered. Using her legal training, Simon targeted nutrition policy, which was traditionally concerned with remedial programs like food stamps. "I was interested in quality, not just access—how to help people be healthier rather than just not hungry."

She soon discovered a prominent nutritionist, Marion Nestle, PH.D., the Paulette Goddard Professor of Nutrition at New York University's Nutrition, Food Studies and Public Health Department and author of *Food Politics* and *What to Eat*, who was uncovering how politics influences America's food choices. "I'm a disciple of hers, a great admirer, following in the trail she blazed, popularizing the notion of politics attached to what we eat," Simon said.

Working with colleagues at Yale's Rudd Center for Food Policy and Obesity, Simon analyzed industry influences on state food-related laws; her report, which argued that despite recent legislation to improve school food, more needs to be done, was published in the *Food and Drug Law Journal* in 2007. In late 2006, she spoke at both Rudd and the School of Public Health. "It was a lot of fun to go back as an alum. Talking about how I combine public health with law was a great opportunity to encourage graduates of the M.P.H. program to pursue policy and law, a growing field. Some major funders are seeing the need for more lawyers to work on nutrition."

Nestle calls Simon "an unusually clear thinker about food issues, as she proves in *Appetite for Profit*, a terrific book. I use it to teach students how to interpret what food corporations really

mean when they mutter platitudes about wanting to improve health, and to understand why the goals of food companies and public health can never really overlap. She's so on top of the issues that I'm always learning new things from her."

Now in its second printing, Simon's well-reviewed book provides practical tools for "going up against the food industry. It's a voice for people who have been working on this issue, frustrated by the obstacles." (She has chapters on "Exposing Government Complicity" and "Battling Big Food in Schools.") And, challenging a central argument of the food industry—that nutrition is a personal lifestyle choice, not a matter of public policy—she said, "This isn't just a matter of personal choice—it's a societal responsibility."

—Carol Milano

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### Familiar Faces

**Do you have a colleague who is making a difference in medicine or public health or has followed an unusual path since leaving Yale? We'd like to hear about alumni of the School of Medicine, School of Public Health, Physician Associate Program and the medical school's doctoral, fellowship and residency programs. Drop us a line at [ymm@yale.edu](mailto:ymm@yale.edu) or write to Faces, Yale Medicine, 300 George Street, Suite 773, New Haven, CT 06511.**



Marc Yoshizumi



Eduardo Alfonso

## 1940s

**B. Herold Griffith**, M.D. '48, HS '50, presented a paper at a meeting of the Chicago Society of Medical History in December on "Johns Hopkins and the Revolution in American Medicine." Griffith is professor emeritus of surgery and chief emeritus of plastic surgery at Northwestern University Medical School in Chicago.

**F. Carter Pannill Jr.**, M.D. '45, was honored in October with the naming of the F. Carter Pannill Jr. M.D. Chair in Internal Medicine at the University of Texas Medical School at San Antonio. Pannill was the founding dean of the medical school in 1965.

On November 17 **Samuel Ritvo**, M.D. '42, celebrated his 90th birthday at a gala at the New Haven Lawn Club co-sponsored by the Western New England Institute for Psychoanalysis, which he helped found in 1954,

and the Yale Child Study Center, where he has served on the faculty since 1950.

## 1970s

**Guthrie S. Birkhead**, M.D. '79, deputy commissioner of the Office of Public Health for the New York State Department of Health, received in March one of the 2008 Dr. Nathan Davis Awards for Outstanding Government Service from the American Medical Association (AMA). These national awards, named for the founder of the AMA, are presented to local, state and federal career and elected government officials in seven categories of public service. Birkhead's award is in the category of "Career Public Servant at the State or Local Level." He is the chief public health physician in the state health department, overseeing four public health centers and two public health offices.

**Robert L. Goldenberg**, M.D., HS '74, was appointed professor emeritus of obstetrics and gynecology by the University of Alabama (UAB) Board of Trustees on November 9. The board recognized Goldenberg for his 30 years of service. Since joining the faculty in 1976, Goldenberg has held a number of positions, including director of the Center for Women's Reproductive Health, director of the Center for Obstetric Research, chair of the Department of Obstetrics and Gynecology and the Charles E. Flowers Endowed Professorship in the Department of Obstetrics and Gynecology.

**Harry S. Romanowitz**, M.D. '73, has established the first free-standing independent pediatric urgent care center in Fairfield County, Conn., Firefly After Hours Pediatrics. Romanowitz is the medical director of the new facility, which is located in Stamford. He served more than 20 years as

chair of pediatrics and pediatrician in chief at Stamford Hospital.

**Marc O. Yoshizumi**, M.D. '70, has retired after 29 years at the University of California, Los Angeles, where he was a professor of ophthalmology. He also served as director of the Eye Trauma and Emergency Center and of the Jules Stein Eye Institute's Medical Student Education in Ophthalmology Program.

## 1980s

**Eduardo C. Alfonso**, M.D. '80, the Edward W.D. Norton Professor of Ophthalmology, was named interim chair of Bascom Palmer Eye Institute, which serves as the Department of Ophthalmology of the University of Miami Miller School of Medicine. His appointment began on November 1. Alfonso will also serve as director of Bascom Palmer's patient care facilities. A 1984 graduate of the institute's residency program, Alfonso has been on the faculty since 1986.

**Jacqueline Gutmann**, M.D. '85, a reproductive endocrinologist, has joined Northern Fertility & Reproductive Associates in Philadelphia. Gutmann is a clinical associate professor and associate director of the Division of Reproductive Endocrinology and Infertility at Thomas Jefferson University School of Medicine. She specializes in assisted reproductive technologies; polycystic ovarian syndrome; and third-party reproduction and family building for same-sex couples. She also has a strong interest in complementary medicine.

**Idalia Ramos Sanchez**, M.P.H. '81, was named senior policy advisor

## CASTING CALL FOR STANDARDIZED PATIENTS

The Yale School of Medicine (YSM) Standardized Patient Program invites alumni, their families and other interested members of the medical school community to participate as standardized patients in clinical teaching programs for medical students. Standardized patients simulate real patients as they are interviewed and examined by medical students who are observed and supervised by physicians. Scripts for patient role playing and ample training will be provided. One- to two-hour teaching sessions are held on campus on certain weekdays. It is recommended that standardized patients participate in at least 10 sessions per year. A stipend is provided to cover such costs as parking and travel. If you are interested in contributing to the YSM educational program as a standardized patient, please contact the director, Frederick Haeseler, M.D., FW '76, associate clinical professor, at [frederick.haeseler@yale.edu](mailto:frederick.haeseler@yale.edu).





**Idalia Ramos  
Sanchez**



**James Talcott**



**M. Kathleen  
Figaro**



**Samuel Myers**



**Ali Kemal Ozturk  
Christina Yuan**

of the National Center on Minority Health and Health Disparities (NCMHD) in February. The center is part of the National Institutes of Health (NIH). Sanchez will serve as the primary legislative liaison within the Division of Scientific Strategic Planning and Policy Analysis, which coordinates the development of NCMHD's strategic plan and is responsible for assessing and highlighting NIH's efforts to eliminate health disparities. Sanchez has spent 25 years in public health; she began her career with the Department of Public Health in Hartford.

**James A. Talcott, M.D. '80, M.P.H.,** and Nancy S. Knox were married on December 1 in New York City. Talcott is the director of the Center for Outcomes Research at the Massachusetts General Hospital Cancer Center in Boston. The center researches the effects of cancer and cancer therapy on patients in order to improve care and assess cancer-care technology. Nancy Talcott is a freelance writer and researcher for magazine articles and documentaries in New York and Boston.

## 1990s

**M. Kathleen Figaro, M.D. '96,** an assistant professor of medicine at Vanderbilt University Medical Center, has been chosen as one of four national fellows in health advocacy by Columbia University's Center on Medicine as a Profession. As a fellow she will work to improve the quality and accessibility of health insurance for poor Tennesseans after Tenn-Care's 2005 mass disenrollment. With her husband, Alan Rice, she welcomed their first child, Victoria, on November 14.

**David John, M.D., HS '90,** was named director of emergency services at Caritas Carney Hospital in Dorchester, Mass., in November. John served for the past six years as the medical director of quality risk management and associate chair of the three emergency services departments at Middlesex Hospital in Middletown, Conn. He has served as the president of the Connecticut College of Emergency Physicians, chair of the Quality Section Committee of the American College of Emergency Physicians (ACEP) and chair of the Geriatrics Committee of the ACEP.

**Michael A. Joseph, M.P.H. '96,** PH.D., and Lauretta Adwoa Larbi Ansah, M.P.H., were married on November 9 in Brooklyn, N.Y. The ceremony was held at the Bedford Central Presbyterian Church, where Joseph and Ansah lead the HIV/AIDS ministry.

The bride is a program analyst in the office of the inspector general at the Environmental Protection Agency's program evaluation office in Manhattan. Joseph is an assistant professor of epidemiology at the State University of New York Downstate Medical Center in Brooklyn and a founder of the Black Young Professionals' Public Health Network, an organization that works to increase opportunities for minority students in the field of public health.

**Samuel S. Myers, M.D. '92, M.P.H.,** was elected in October to the board of directors of the Worldwatch Institute, an environmental research organization. Myers is an instructor in medicine at the Harvard Medical School, where he recently completed a

research fellowship in general internal medicine funded by the National Institutes of Health. For his fellowship he researched the role of patients' expectations for improvement in their clinical outcomes. Myers was also senior director of the Healthy Communities Initiative at Conservation International, which addresses health, family planning and development needs of villagers living in priority conservation areas in the tropics.

**Scot Phelps, M.P.H. '95,** has joined Southern Connecticut State University as an associate professor of emergency management to create the first graduate-level emergency management program in the state. He recently helped Auckland University of Technology in New Zealand to assess a similar program. He will be speaking at the World Conference on Disaster Management this June in Toronto. He can be reached at [phelpss1@Southernct.edu](mailto:phelpss1@Southernct.edu).

## 2000s

**Jonathan Erulkar, M.D. '01,** and **Deirdre Carroll Erulkar, M.S.N. '00,** announced the birth of their second son, Benjamin Holder Erulkar, on May 18, 2007, in Boston. After completing a spine surgery fellowship there, Jonathan and family moved to Lake Forest, Ill., where Jonathan is a partner in the Bannockburn office of the Illinois Bone and Joint Institute.

**Katherine Van Loon, M.D., M.P.H. '02,** and **Jonathan G. Steitz, J.D. '07,** were married on November 3 in Sea Island, Ga. Van Loon, who received her medical degree from the Medical College of Georgia, is a second-year resi-

dent at Beth Israel Deaconess Medical Center in Boston. Steitz is the son of Joan A. Steitz, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry, and Thomas A. Steitz, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry and professor of chemistry. Steitz was drafted in 2001 by the Milwaukee Brewers as a pitcher, but his baseball career was ended by rotator cuff tendonitis in his right shoulder. He is now a consultant in Boston for McKinsey & Company, the management consultants.

**Christina Yuan, M.P.H. '05,** and **Ali Kemal Ozturk, M.D. '06,** were married in Villanova, Penn., on November 3. Yuan is a research associate at the School of Public Health, and Ozturk is a resident in neurosurgery at Yale-New Haven Hospital.

## SEND ALUMNI NEWS TO

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## VISIT US ON THE WEB

[yalemedicine.yale.edu](http://yalemedicine.yale.edu)

**Norman H. Bass, M.D.** '62, a physician-educator, neuroscientist, and child and adult neurologist, died on February 24 at his home in West Falmouth, Mass. He was 71. In 1963 Bass was commissioned as a second lieutenant in the medical corps of the Army National Guard, from which he retired as a major and medical battalion commander. Before beginning a practice in Cape Cod, Bass held professorships at Boston University, the University of Pittsburgh, the University of Maryland, the University of Kentucky and the University of Virginia. His achievements in academic medicine were published in the 2007 edition of *Who's Who in America*.

**Malcolm B. Bowers Jr., M.D., HS** '65, professor emeritus and senior research scientist in psychiatry, died on January 13 at his home in Branford, Conn. He was 74. Bowers spent 45 years on the Yale faculty, serving as chief of psychiatry at Yale-New Haven Hospital and director of residency training and attending psychiatrist at Yale-New Haven Psychiatric Hospital. He was the author of several books, including *Retreat From Sanity*, *A Psychiatrist Recollects* and *Abetting Madness*. His most recent book, *Men and Poisons: The Edgewood Volunteers and the Army Chemical Warfare Research Program*, was published in 2005.

**John C. Carpenter, M.D.** '47, died on January 7 in Aventura, Fla. He was 85. Carpenter served as an assistant medical officer in the U.S. Army in Virginia and in Germany. In 1957 he joined Canandaigua Medical Group, in Canandaigua, N.Y., where he practiced until 1987.

**Richard H. Cote, M.D.** '48, died on November 3 in Santa Rosa, Calif. He was 82. During World War II Cote received a Victory Medal, Good Conduct Medal and American Theater Campaign Ribbon for his service in the U.S. Army 3305th Service Unit. He also served in the U.S. Air Force in a MASH unit in Korea in 1950. He was an orthopaedic surgeon with a practice in Santa Rosa from 1960 until his retirement in 1997. He was a fellow of the American College of Surgeons and the American Academy of Orthopedic Surgeons.

**Joseph F.J. Curi, M.D.** '64, died in October in Goshen, Conn., of acute myelogenous leukemia. He was 69. A captain in the U.S. Air Force, Curi served in the 392nd Aerospace Medical Group at Vandenberg Air Force Base in California. In 1970, after a fellowship in adolescent medicine at Harvard, he joined the staff of Charlotte Hungerford Hospital in Torrington, Conn. He also had a solo practice in pediatrics and adolescent medicine for 34 years. He was a member of the Connecticut State Medical Society, the Litchfield County Medical Society and the American Academy of Pediatrics. He was class secretary for his medical school class and served on the executive committee of the Association of Yale Alumni in Medicine. Curi received the Distinguished Alumni Service Award in June 2004.

**Hillary Blair Stanton Foulkes, M.P.H.** '07, died on December 21 in Austin, Texas, of complications from leukemia. She was 25. Born in Natick, Mass., Stanton Foulkes graduated from Massachusetts Institute of Technology in 2005

and took a position as a research assistant at the Harvard School of Public Health before beginning her studies at Yale. After her graduation she received a two-year fellowship from the Centers for Disease Control and Prevention and began working as an epidemiology fellow with the Department of State Health Services in Austin. She was an accomplished musician and dancer, performing with the MIT Wind Ensemble and the MIT Dance Troupe.

**Ward S. Jenkins, M.D.** '44, died on October 31 in Burlington, Vt. He was 86. After receiving his medical degree Jenkins joined the Army Medical Corps. After eight years as a general practitioner in Salem, N.Y., he studied allergy at the Lahey Clinic in Burlington and joined the Toledo Clinic in 1958. He practiced there until his retirement.

**Edna M. Klutas, R.N., M.P.H.** '57, died on September 9 in Newville, Penn. She was 89. Klutas was a veteran of the U.S. Army Nurse Corps, serving in Puerto Rico and Virginia from 1942 to 1946. From 1955 to 1956 she was the acting executive director of the American Association of Industrial Nurses and served as one of the organizing board members of the American Board for Occupational Health Nurses (ABOHN) in 1969. In 1975 she served as chair of the ABOHN board.

**Joshua Lederberg, PH.D.** '47, Nobel laureate, University Professor and president emeritus of The Rockefeller University, died of pneumonia on February 2 in New York City. He was 82. Lederberg began medical school at

Columbia's College of Physicians and Surgeons in 1944 but took a leave of absence in 1946 to work in genetics with Edward L. Tatum, PH.D., at Yale. In 1958, at the age of 33, Lederberg shared the Nobel Prize in physiology or medicine with Tatum for their work on the organization of genetic material in bacteria. He advised nine United States presidential administrations, and was a distinguished molecular geneticist whose achievements helped to stimulate the current revolution in molecular biology and biotechnology.

The son of a rabbi, Lederberg was born in Montclair, N.J., in 1925, and graduated from Stuyvesant High School in New York City at the age of 15. He received his bachelor's degree from Columbia College in 1944. He held appointments at the University of Wisconsin and Stanford University School of Medicine before becoming the fifth president of The Rockefeller University in 1978. He retired in 1990.

While at Yale, he made the seminal discovery that a form of sexual reproduction occurs in bacteria, demonstrating that bacteria possess a genetic mechanism called recombination, similar to that of higher organisms, including humans. He later showed that bacterial genetic material is exchanged not only by conjugation, when the entire complement of chromosomes is transferred from one bacterial cell to another, but also by transduction, when only fragments are transferred. More recently, his work addressed the way in which the activation of genes alters their vulnerability to mutagenesis.

Lederberg served in the U.S. Navy during World War II as a medical corpsman in the clinical pathology laboratory of St. Albans



Naval Hospital in Queens, N.Y. After the war he worked on many government advisory committees and boards dealing with research on physical and mental health. He played an active role in the Mariner and Viking missions to Mars sponsored by the U.S. National Aeronautics and Space Administration. He was a consultant to the Arms Control and Disarmament Agency during the negotiation of the biological weapons disarmament treaty, and he continued to advise the federal government on national security issues.

In addition to the Nobel Prize, Lederberg was honored with many awards and prizes, including the National Medal of Science in 1989 and the Presidential Medal of Freedom in 2006. He was also a member of the boards of several foundations, including the Carnegie Corporation and the Revson Foundation, and he served as chair of the scientific advisory board of the Ellison Medical Foundation.

**Albert R. Matteson Jr.**, M.D. '44, died on October 10 in Indianapolis. He was 87. Matteson served in the U.S. Army Medical Corps, completed a residency in otolaryngology at Roosevelt Hospital in New York City and began a practice in Danville, Ill. He retired in 1997.

**William F. McKeon**, M.P.H. '82, died on December 4 in West Springfield, Mass. Born in 1933, McKeon received his medical degree from the New York College of Medicine before serving as a medical officer in the U.S. Navy. He then practiced urology in Norwich, Conn., for 20 years. After receiving his M.P.H., McKeon pursued a second career

in public health, working as The Monsanto Company's medical director in Springfield, Mass.

**James W. Needham**, M.D. '48, HS '51, died on November 16 in Los Angeles. He was 81. From 1951 to 1955 Needham was a flight surgeon in the U.S. Air Force. He started a practice in Van Nuys, Calif., and joined the faculty at the University of California, Los Angeles. He was a consultant for the March of Dimes and a fellow of the American Geriatrics Society.

**Elizabeth D. Robinton**, PH.D. '50, died on January 9 in Lenox, Mass. She was 97. A microbiologist with a strong interest in public health, Robinton earned her bachelor's degree at Columbia University's Teachers College and went on to complete a master's at Smith College. She worked at the Kentucky State Public Health Laboratories and the Connecticut Public Health Laboratory, in Hartford, before beginning an academic career in 1944 teaching biology at Smith College. After receiving her doctorate in public health in 1950 from Yale, Robinton became tenured in 1954, and in 1967 became the first chair of Smith's new department of biological science. In 1994, as professor emeritus, Robinton was awarded Smith's Charis Medal "in recognition of academic excellence, loyalty and commitment to teaching and students."

**Joseph Ross**, M.D. '62, died on December 27 at his home in Wayland, Mass. A psychiatrist for more than 30 years, Ross was a Woodrow Wilson fellow while earning a master's in philosophy at Yale's Graduate School of Arts

and Sciences. After attaining his medical degree and completing a residency in psychiatry at University Hospital in Boston, he served as a lieutenant commander with the U.S. Navy at Quantico, Va., where he provided psychiatric care for servicemen and servicewomen and their families. He served as assistant director and then director of Trinity Mental Health Center in Framingham, Mass., and was on the medical staff at MetroWest Medical Center, formerly Framingham Union Hospital. Ross maintained a private practice in Natick, Mass., for more than 20 years and served for more than 25 years as a psychiatric consultant for St. Patrick's Manor, a retirement community in Framingham.

**Edwin J. Scott**, M.D. '42, died on February 10 in Hawthorne, N.Y. He was 91. Scott served as a medical technician during World War II, stationed in England, France and Iceland and at Walter Reed General Hospital. In 1948 he became an editorial artist at the *Sunday Mirror Magazine* for King Features and was later named art director in the promotion department.

**Richmond W. Smith Jr.**, M.D. '42, died on December 1 in Camden, Maine. He was 90. Smith served for three years as a medical officer in the U.S. Navy during World War II, serving in the battle of Leyte Gulf and early phases of the assault on Okinawa. After the war he completed his residency and a research fellowship at New York Hospital-Cornell Medical Center. After the war he returned to Henry Ford Hospital in Detroit, where he had done his internship. While there he established

the Division of Endocrinology and became chair of medicine, publishing articles on obesity research. He also conducted research into osteoporosis and made the first appraisal of the social and economic importance of the disease in the 1960s.

**Hilliard Spitz**, M.D. '43, died on December 13 in New London, Conn. He was 90. After his graduation Spitz interned at Mount Sinai Hospital in New York City. He then joined the U.S. Navy, serving as a medical officer at the time of the Normandy invasion in 1944. He also served in the Pacific. In 1948 he returned to New London, his hometown, and started a practice in internal medicine. In 1976 and 1977 he served as president of the Connecticut State Medical Society.

**Robert W. Wroblewski**, M.D. '58, died on December 16. He was 78. Wroblewski began his career as a general surgeon in 1963 in Akron, Ohio. After additional training he switched to oncology and oncological surgery, completing a two-year fellowship in oncology at the Boston University Medical Center in 1974. He was chief of oncology at Akron General Medical Center, director of oncology at Medina Community Hospital in Medina, Ohio, and cancer program director at Good Samaritan Hospital in Vincennes, Ind.

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SEND OBITUARY NOTICES TO  
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 to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu)



## Public health alumna's water project reaches its first milestone in Niger

Just over a year ago Ariane Kirtley, M.P.H. '04, described in words and photographs her work in the Azawak, a remote region in the western African country of Niger [See "Water is Life," Winter 2007]. Prolonged drought, she found, was threatening the existence of the region's inhabitants, many of whom are nomadic pastoralists. "These people are literally dying of thirst because they do not have access to water," Kirtley said. "This is one of the poorest regions in one of the poorest countries in the world. There are no roads, few schools, little health care and almost no humanitarian assistance."

In this remote area of 80,000 square miles, where it can take two days on the back of a donkey to reach a clinic or school, reliable sources of potable water are essential to survival, Kirtley said. During a visit to New Haven in October, she reported the first success of the organization she founded, Amman Imman, which is dedicated to building boreholes that will draw water from between 600 and 3,000 feet below the surface.

"We have built the first borehole," she said, adding that it is located in the village of Tangarwashane, with a population that fluctuates between 300 and 500. "It serves not only the village but all the communities surrounding the village and all the nomads that come through." The borehole provides water for 5,000 people who live in seven communities within a 10-mile radius. During the dry season as many as 25,000 people and animals will take water from the borehole.

Construction began in January 2007 and was completed in July of that year. The borehole has four animal troughs, a tower that holds up to 5,300 gallons of water, a water fountain with six faucets near the water tower and another fountain with two faucets in the village.

Kirtley's nonprofit organization also created a local committee that will ensure maintenance and financial, environmental and social management of the borehole. And, she added, providing clean water has brought other changes. "They have built a school," she said. "They have started growing subsistence crops. A lot of positive changes are taking place."

—John Curtis



## Artificial Kidney to be Purchased

—Alumni Bulletin  
October 1958

"The School of Medicine has received \$5,000 from the United Fund of Middletown, Connecticut, as a contribution in support of basic research. In announcing the gift, Dean Lippard stated that the money will be used for the purchase of an artificial kidney. The equipment for hemodialysis will be set up in a special laboratory adjacent to the Pitkin 2 medical ward and will be under the direction of Dr. Franklin Epstein, assistant professor of medicine. It will be available for treatment of selected patients and for research in renal physiology. One of the research studies will involve investigation of the effects of renal failure on the nervous system."



## Mystery of Lyme Disease a Step Closer to Being Solved

—Yale Medicine  
Spring / Summer 1983

"Scientists at the School of Medicine have isolated for the first time a newly recognized spirochete from the blood, skin or cerebrospinal fluid of patients with Lyme disease. 'The recovery of this organism from patients provides important evidence that the *I. dammini* spirochete is the causative agent of Lyme disease,' according to Dr. Allen C. Steere, principal investigator of the research.

"... The new finding has implications for better diagnosis and treatment of the illness, and may help in the understanding of some other immune-mediated diseases such as rheumatoid arthritis.

"Lyme disease, first recognized in 1975 by Yale medical scientists including Dr. Steere and Dr. Stephen E. Malawista, professor of medicine and head of the Section of Rheumatology, has affected hundreds of people along the Atlantic coast and in some mid- and far-western states. It typically begins in summer with a unique skin lesion, erythema chronicum migrans (ECM), which sometimes expands to a diameter of five inches or more, and may be accompanied by flu-like symptoms. ...

"The first clue that Lyme disease was caused by an infectious agent was the fact that several children with typical symptoms lived in the same neighborhood in Lyme, Connecticut. ..."



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Institutional Planning and Communications  
Yale School of Medicine  
300 George Street, Suite 773, New Haven, CT 06511

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Black-and-white and color prints as well as digital photographs may be submitted.

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## STRIKING A CHORD

In mid-December about 90 musicians—students and faculty in medicine and public health—took the stage in Harkness Auditorium with their strings, woodwinds and brass. “It was a fun, lovely, wonderful evening,” recalled Lynn T. Tanoue, M.D. ’82, HS ’85, associate professor of medicine, describing the informal sight reading of music by Vivaldi, Rossini and Beethoven. It was also the first gathering of a group that Tanoue and Thomas P. Duffy, M.D., professor of medicine and director of the Program for Humanities in Medicine, hope will become the Yale Medical Symphony Orchestra.

The orchestra has “clearly tapped into a desire,” said Tanoue. She learned to play the violin as a child; as an adult she played in the Yale Symphony and a New Haven community orchestra but had to stop when her children were born. Fifteen years later she was ready to return to an orchestra. “Many of us were very dedicated musicians at another time in our lives,” she said, “but there usually aren’t any opportunities at the medical school to do this.”

Duffy sees the orchestra, which receives financial support from the School of Medicine and Yale-New Haven Hospital, as a way to build bridges among people in the schools and departments of the medical campus. “It’s a real opportunity to create a community amidst the community,” he said.

—Jennifer Kaylin



JULIE BROWN

About 90 students and faculty members from the medical school gathered in December to play music by Vivaldi, Beethoven and other composers in the first rehearsal of what is hoped will become the Yale Medical Symphony Orchestra. The symphony gave its inaugural concert at the medical school in June.

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